

HOT OS X HINTS | MAKE YOUR iPOD SING

Look What Else Your Mac Can Do! p.74

Optimize Apple's Music Player with Our Insider's Tips, p.82



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The Mac Product Experts

August 2003

Macworld

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- Put USB Printers on a Network
- Extend Your AirPort's Range
- Build a Mac Clone
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- Configure a Wireless Bridge
- Upgrade the 15-Inch Flat-Panel iMac
- Improve Your Digital-Camera Photos

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GET THE SKINNY

Replace Your Old CRT Monitor with an Affordable 20-Inch Flat-Panel LCD, page 66

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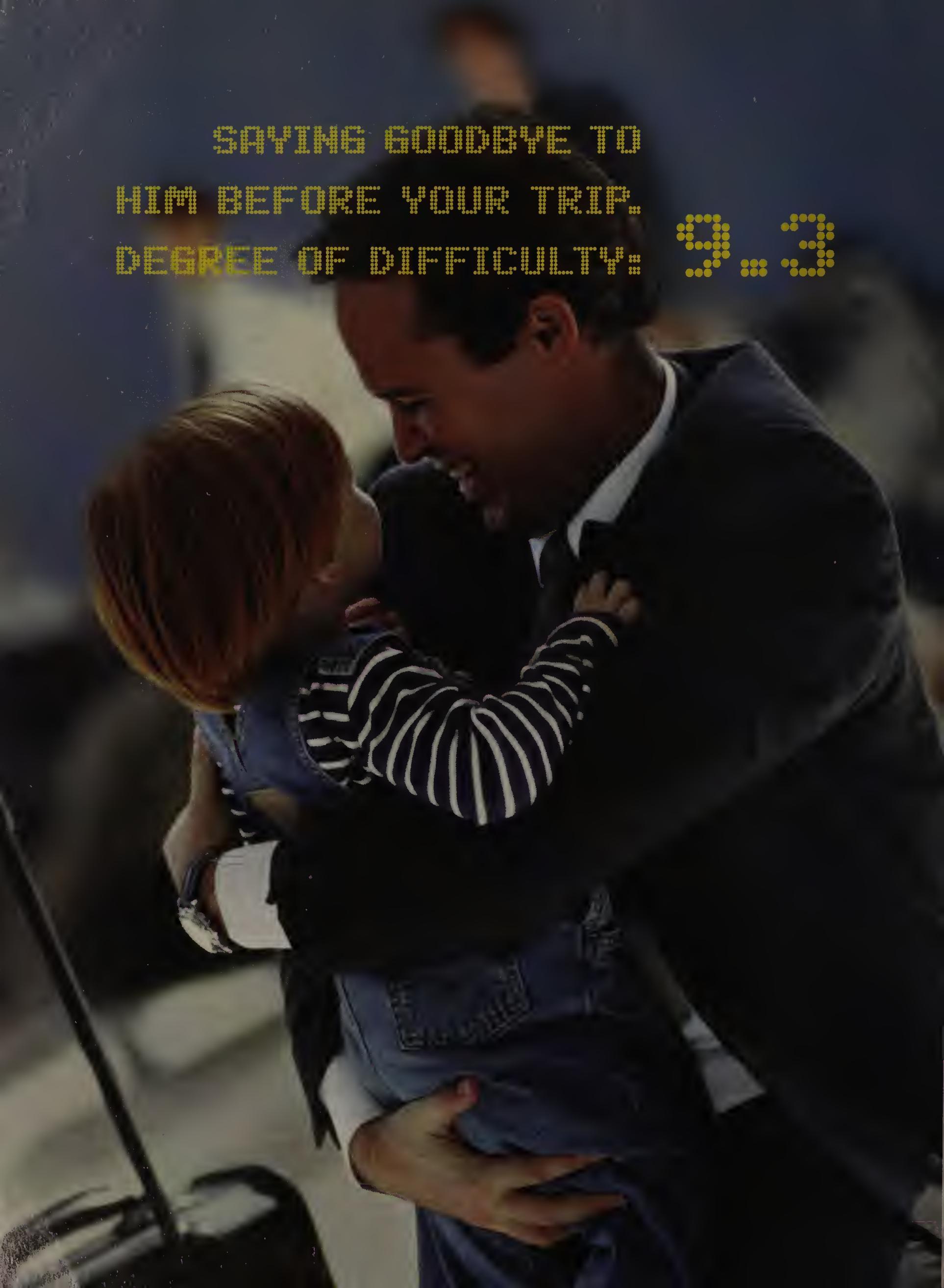




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Sometimes power is more important than speed.

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ROB GRIFFITHS

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CHRISTOPHER BREEN

You love your iPod, but we know how to improve it. Keep it running longer, copy music from it to your Mac, and even store recipes in it!

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SCHOLLE SAWYER McFARLAND

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CHRISTOPHER BREEN

You can flout iDVD's 30-second motion-menu limit, short-circuit the Dock's hide command, capture audio snippets from commercial DVDs, and play Riven and Myst III: Exile without once swapping discs.

On the Cover

Illustration by Paul Howalt

August 2003

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Incorporating MacUser

COVER STORY

- 52 The Do-It-Yourself Mac

This massive guide to improving Macs and related hardware is bursting with tips, including installing a SuperDrive in an old G4 and networking your USB printers.

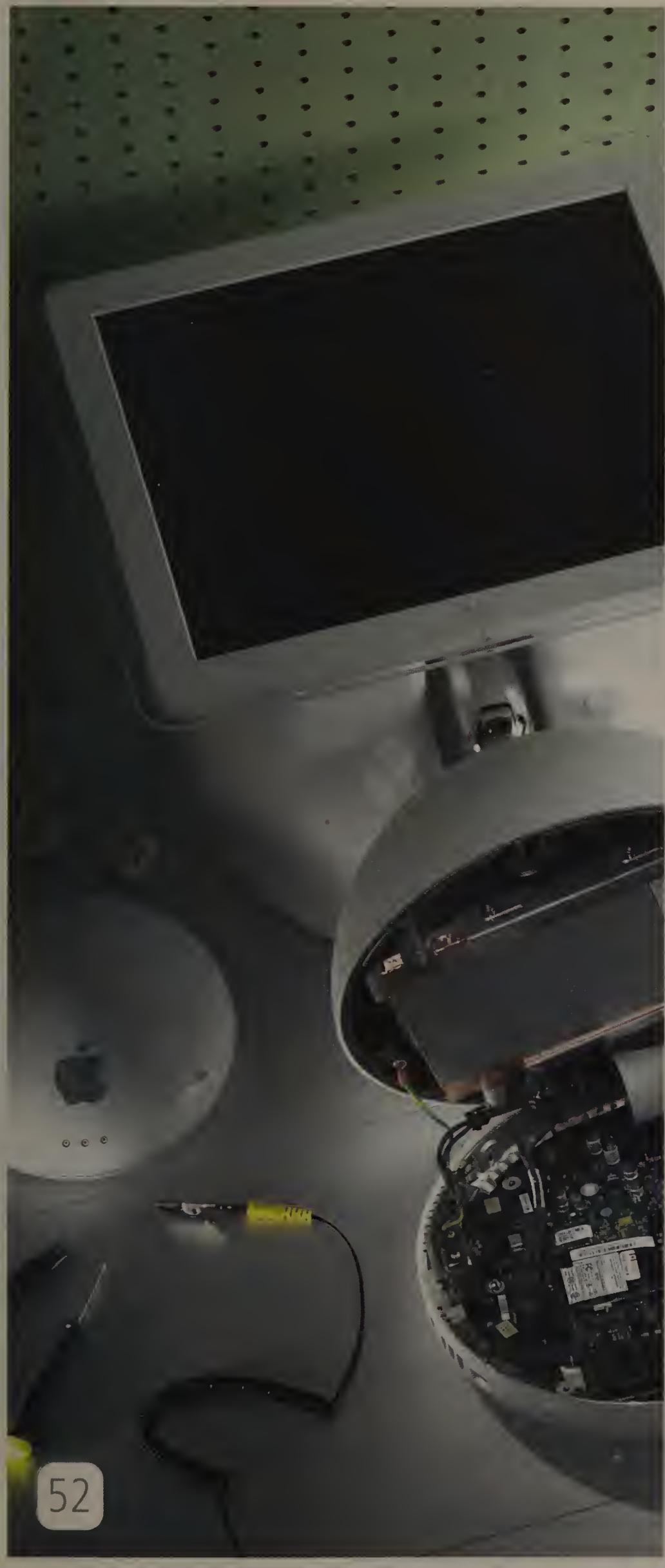
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JAMES GALBRAITH

In the beginning, only executives could afford sleek LCD monitors. But now that prices are dropping, LCD monitors may benefit the rest of us. Find out which LCD is best for you.





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Discover some great free and low-price utilities.

A Love Story

You were attracted to his simplicity. His easy-going nature. But now you find keeping it going is hard work. You're always making excuses for him...

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You Don't Have to Be Bob Vila to Improve Your Mac

Mac Makeovers

WHEN THE 128K MAC MADE ITS DEBUT IN 1984, ONE OF THE knocks against it was that it was a closed system, impossible to modify or upgrade. That was largely an unfair characterization—upgrades and enhancements were also few and far between for the DOS machines available then—and it didn't stop enterprising users and vendors from working their way into the case of that first-generation Macintosh. I remember the awed reaction of the audience when, at a Boston Computer Society meeting in 1985, GCC Technologies presented the HyperDrive, the first internal hard drive for the Mac. The excitement then was as much about the technical feat as it was about the addition of 5MB—*5 whole megabytes!*—of storage. But what I remember most was how much *faster* that Mac ran with the HyperDrive inside.

These days, upgrades may not match the HyperDrive's ability to inspire awe, but they certainly cost less (the first HyperDrive cost as much as, if not more than, the Mac it went into). You can also perform a lot of these modern-day upgrades yourself.

Many of you know that adding more RAM or a faster hard drive can bolster your Mac's performance, but there are lots of other things you can do to make your Mac more powerful, productive, or fun. In "The Do-It-Yourself Mac," page 52, we feature a bunch of projects that teach you how to boost your Mac's storage, extend the range of your AirPort network, allow USB-printer sharing, and more. Some of these projects are simple; a few require more patience and time. But all of them will make your Mac experience a little bit better. And as always, if you want more of these types of articles, let us know.

Secrets Lovers

In addition to the do-it-yourself system-enhancement projects, this month's *Secrets* section, starting on page 74, is chock-full of illuminating how-tos about specific applications. In "Squeeze Play," Christopher Breen provides an informative tutorial on how you can get better QuickTime video compression, on the cheap; in "Speak Your Mind," Scholle Sawyer McFarland lets you in on some clever ways to make MacSpeech's iListen a more productive tool for speech recognition. To top things off, we also have a valuable collection of OS X tips, courtesy of Rob Griffiths, who runs the excellent Mac OS X Hints Web site (www.macosxhints.com).

iBook: Racer X

While we're on the topic of performance improvements, I wanted to pass along something we've noticed regarding OS X and the iBook. For a long time, it was hard to justify running OS X on the PowerPC G3-based portable, especially if speed was of paramount concern to you.

In the past few months, however, I've helped a few iBook owners move to OS X, and I've also had time to play around with some of the newer iBooks. I've been extremely impressed with the performance of OS X on all the iBooks I've used, even one with a lowly 500MHz processor. Apple has done a really good job of improving OS X's performance on those portables, especially with its most recent updates (OS X 10.2.6 is the current version, and it runs very well on the iBooks I've set up for friends).

You're not going to want to do heavy-duty image or video editing on a 500MHz iBook with OS X, but tasks such as word processing, database management, Web surfing, and sending out e-mail are all pretty snappy. Just make sure you've got as much RAM in your iBook as possible; luckily, RAM is pretty cheap right now.

On the Prowl

By the time you read this, Apple will have unveiled Panther, the next major update to Mac OS X, at its annual Worldwide Developers Conference. Apple hopes to make a bigger splash with Panther than it has with many of the previous OS X announcements, and most of my contacts close to Apple say Panther will be a spectacular upgrade.

We'll have detailed coverage of the Panther announcement in next month's *Macworld*, but if you need to satisfy your curiosity now, head to www.maccentral.com for coverage of the announcement, including when you can expect to see the follow-up to last year's big cat. □

I've been impressed with the performance of OS X on the iBook.

Once you've had a chance to try out some of our upgrade tips, drop me a line about what you'd like to see in the pages of *Macworld*, the state of Apple, or anything else related to the Mac. You can reach me by e-mail, at rick_lepage@macworld.com, or you can join the discussion forums at www.macworld.com.





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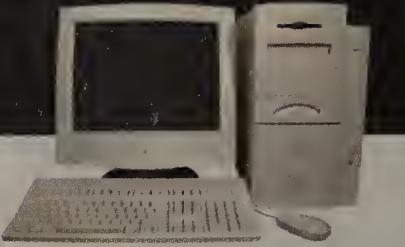
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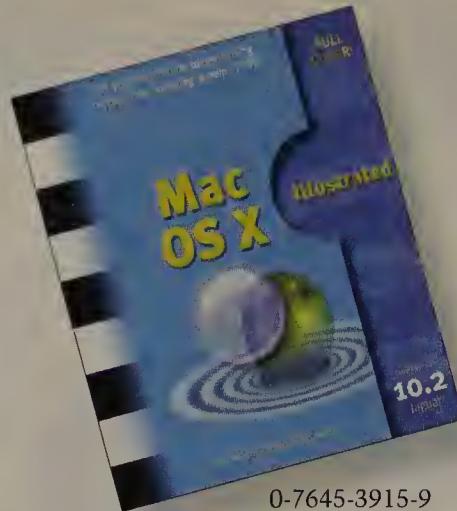
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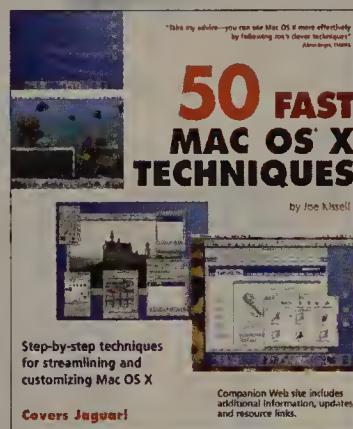
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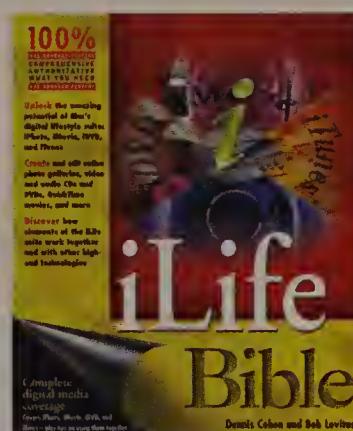
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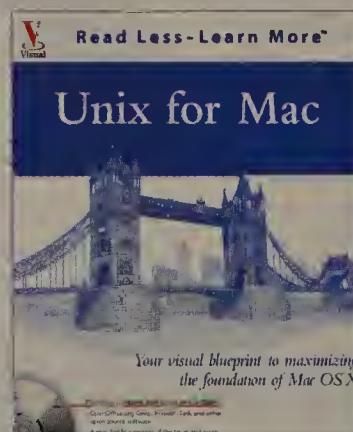
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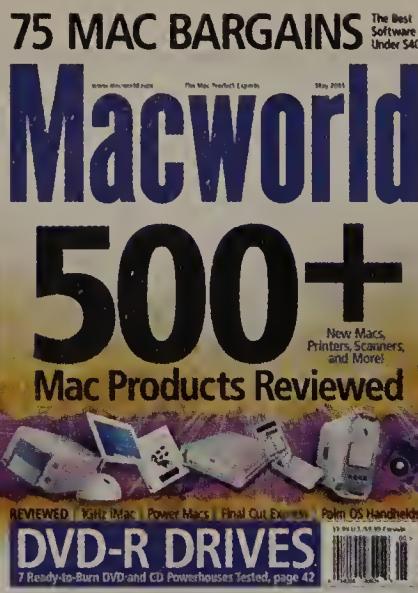


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FEEDBACK

Blue-Mouse Special

With more than 500 reviews packed in its pages, our May 2003 issue was the magazine equivalent of one of those warehouse superstores where bargain-hungry customers buy canned soup by the pallet and paper towels by the metric ton. What's the secret to squeezing in so many mouse-rated products? *Volume!* But that's nothing compared with the volume of feedback we get on everything from PDA roundups to the Watson-versus-Sherlock debate. Mac users are on the lookout for bargains, sure, but they're shopping for information, too. It's a good thing we're open 24-7 to offer that. □

Bargain Hunters

CENNA SUTJIPTO

Thank you for "75 More Mac Software Bargains" (May 2003). It gave me a chance to try out several very cool programs I wouldn't have known about otherwise. Needless to say, it also gave me a chance to show off to those of my friends who are still stuck in their Windows world.

SHERRI LOCKER

I am still exploring all the system utilities, but I downloaded Unsanity's Window-Shade X 2.1, and I love it. I really forgot how much I missed this OS 9 feature. I consider it much more productive than OS X's Windows-esque manner of minimizing windows and cluttering up the Dock. I was more than happy to pay \$10 for the luxury of bringing back a function that Apple left out.

JOHN MCINTOSH (REDSTONE SOFTWARE)

You recommended Share My Desktop 1.2. While it's a nice wrapper, the underlying software is OSXvnc, developed and maintained by Redstone Software. Since it's open source, all we get is recognition, so I'd like to make sure we get that.

Indeed, Redstone Software is the current manager of OSXvnc. VNC technology was originally developed by AT&T, with several different groups managing the OSXvnc project over the years.—Ed.

JIM DAVIDSON

I began browsing all the wonderful things these 75 software programs could do. Alfred 1.4 made it a snap to enable and disable extensions "in the manner of OS 9's Extensions Manager." Carbon Copy Cloner 2.1 addressed another problem:

"Under Mac OS 9, it was easy to move your system to a different drive . . . Mac OS X can't be copied in that way." DocJector 1.0: "Unmounting removable media . . . has always been difficult in OS X." Drop-Obliter8 1.0: "File-permission snafus in OS X can cause a host of mind-numbing problems." Labels X 1.1 answers "the question 'What happened to OS 9's file and folder labels?'" and "brings back about 95 percent of OS 9's labeling functionality." Window-Shade X 2.1 "brings collapsible windows to OS X." Xounds 1.4 "brings an end to the silent era for OS X." Gee, it all sounds so great. I'm just trying to figure something out: Is the reason I should upgrade to OS X that I can go out and scour the Web for programs that bring me about 95 percent of the functions OS 9 already offers?

Elementary—It's Watson

WILLIE POOR

I have to disagree with Matt Deatherage on Sherlock and Watson ("The Web in a Window," *The Big Picture*, May 2003). Sherlock may be more easily expandable than Watson, but what if Watson already has everything you need? I have no use for all the random, narrow Sherlock channels that are currently flooding the Net. Watson's channels are more than enough and, more important, efficiently accessible. I found the show time for a movie in my area 14 seconds more expeditiously with Watson, a picture of the Mona Lisa 11 seconds more quickly, and my local weather 4 minutes faster. Sure, I'm missing out on the Mah-Jongg National Tournament News channel, but that's news I can live without.

STEVE MARTIN

While the article was very informative, I still have trouble seeing why I would use

Sherlock instead of Watson. I currently have both in my Dock, but I open Sherlock only when I need to check specific eBay auctions. At all other times, I open Watson, simply because it has more channels to choose from in its basic preferences. I've heard that I can search out Web sites that have Sherlock or Watson plug-ins, but what I need is a simple way to get a list of all the channels I can choose from, without having to search the Web manually for them.

J. SCOTT ANDERSON

I love Watson and Sherlock. However, they both fall down on something I think all developers should look at—extensibility for the masses. You have to be a programmer to build plug-ins for either application. Developers could do both their clients and themselves a lot of good by spending time on tools that make it relatively easy for Joe User to create a plug-in.

Palm Readers

DR. JAIRY C. HUNTER

I was disappointed that David Weiss didn't give the Handspring Treo a bit more credit in your roundup of Palm OS-based handhelds (May 2003)—not everyone is as enamored with Graffiti as Weiss seems to be. Why should we pay extra for a keyboard or even a third-party program and cable to force a handheld to work with our Macs? In my experience, Handspring is by far the most Mac-friendly and -compatible PDA company out there, whereas Sony is downright hostile toward Mac users with regard to both compatibility and customer service. True, the Treo 300 is expensive. But the Treo 90 is much more affordable and provides all the upgradability and expandability of the other products.

LISA GADE

David Weiss states that the Sony Clié PEG-NX70V "can take both CompactFlash cards and Memory Sticks." Actually, the CompactFlash slot is only for Sony's own WiFi card. To the dismay of many owners, Sony did not create drivers for CompactFlash memory or storage cards. A third party is working on a CompactFlash driver for the NX and NZ series Cliés, and it might be ready some time in May or June.

My apologies—I inserted a CompactFlash card, and the only app that could see it was Card Info. Not wanting to reformat the card, I stopped there, wrongly assuming the card could be formatted and used. I'm glad to hear solutions are in the works.—David Weiss

The Big Picture**MARK BOHRER**

Bruce Fraser states that the EOS-1DS (♦♦♦; May 2003) is the first full 35mm-frame digital SLR. The Contax N digital SLR, released in August 2001, has a 6-megapixel CCD sensor that covers the

entire 35mm frame. Fraser didn't consider that for photographers shooting sports or wildlife, the sensor-multiplication factor of most digital SLRs is an advantage—you get an extra 1.3x, 1.5x, or 1.6x of telephoto reach with the same lens speed. A 400mm f4 lens becomes a 520mm f4 lens with a 1.3x sensor factor. If you want ultra-wide-angle performance on a digital SLR, Sigma's 15mm–30mm zoom provides it for \$550. If you're already spending \$7,500 on a camera, this isn't too much for an excellent lens. Shooting with the 28mm–70mm f2.8L on an EOS 1D, I've never seen the color aberrations Fraser mentions in anything short of a 20x enlargement.

An End to Emulation?**ANDY BAIRD**

"Emulation Sensation" (*Mac Beat*, May 2003) betrays a serious misunderstanding of what Virtual PC is. This product emulates PC hardware, not Windows software, and that makes all the difference. You can use Virtual PC with any operating system that will run on a PC, including various flavors

of Unix and Linux. Unlike SoftWindows, Virtual PC has not been restricted to Microsoft products. But now that Microsoft owns Virtual PC, how long do you suppose the emulator will remain compatible with non-Microsoft operating systems? Some Mac loyalists were afraid Microsoft had bought Virtual PC to kill it. Not at all. What Microsoft wants to kill is Virtual PC's ability to run other Intel-native OSs.

MATT BARNES

Let me guess—Microsoft's first improvement will be to double Virtual PC's price so it's more in line with that of the exorbitantly priced Microsoft Office.

USB Front and Center**LARRY SLOAN**

I like the specs on the new Power Macs ("Power Has Its Price," *Mac Beat*, April 2003). But I'm hoping Apple will copy one thing I've seen on PCs lately—USB ports on the front of the computer. While Apple is at it, the company could bring back the

continues

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headphone jack and add a FireWire port to the front.

Paint Me Dissatisfied

RANDY DREYFUSS

A while ago, *Macworld* ran an item about TiPaint, a touch-up kit for the Titanium PowerBook ("Brush Up Your TiBook," *Mac Beat*, August 2002). As the owner of one of those unfortunate machines, whose paint seems to flake off with little provocation, I purchased TiPaint. Though my PayPal account was debited, I didn't receive the product for several months. When I complained, I received two small vials of paint and a few toothpicks for more than \$20. Though the paint is color-matched fairly accurately, it dried up in the tubes after only a week or so, and despite numerous e-mails to TiPaint asking what to do, I have never received even the courtesy of a reply.

We've received a number of similar complaints about TiPaint from our readers. We've written to the company about these issues, but it has been unresponsive.—Ed.

Fired Up

GARY MEYERS

Seeing Andy Ihnatko's "The Lunch-Lady Laptop" (May 2003), I was expecting to read about the newly redesigned high-end desktop replacement from Apple. Instead of writing an informed article about the new 17-inch wide screen, FireWire 800, built-in AirPort Extreme, the slot-loading DVD-R, and the wonderful keyboard illumination, this wannabe stand-up comic spends an entire page criticizing the machine's design and heat dissipation. I rarely put my laptop on my lap, and all that power built into a desktop replacement less than an inch thick is something your uninformed writer just doesn't get. I suggest you retire this Mac basher. As a parting gift, give him a 7-pound, 2-inch-thick Dell Inspiron 8500 that costs \$3,829. But you'll have to add an external DVD-R burner and software to go with it. I don't know what Ihnatko will be able to do about the AirPort Extreme or FireWire 800 or illuminated keyboard, because even Dell hasn't reached that level of innovation yet. Then Ihnatko can do his shtick about this gorilla sitting on his lap.

Fax Fixes

WILLIAM K. PONDER

You gave Cocoa eFax 1.0.3 (May 2003) a ♦ rating. I am currently using version 1.1.1 build 7, and the speed of progress for what I consider a great little app has been staggering. I can vouch for the flawless performance of automated receiving in the current version, demonstrated by the numerous junk faxes I receive daily. My 400MHz Power Mac G4 running OS X 10.2.4 dutifully wakes from its sleep; receives, files, and prints the fax; and resets itself for the next round. The current version also provides a novel method for sending from within any app. In the Print dialog box, you just click on the PDF button and choose the Fax This Document option from the pop-up menu. When the Send A Fax dialog box appears, you're off and running.

ROBERT PUFF

I wanted to mention a little-known feature of Smile Software's Page Sender. As far as I know, this option has never before been available in a Mac-based fax application. Page Sender 2.3 and later supports large-format faxes. Using Page Sender, you can easily send and receive tabloid and larger architectural drawings or musical scores.

Don't Take My Kodachrome Away

JOHN BREITIGAN

After reading Bruce Fraser's review of film scanners (May 2003), I went to the Minolta Web site. Under the features section for the Dimage Scan Elite II, I read, "Digital ICE3 is recommended primarily for use with color film, and it can also be used with chromogenic black-and-white film. It is not recommended for use with Kodachrome film." All my slides are on Kodachrome film. I assume that I can save a lot of money and go with the less-expensive Dimage Scan Dual III.

Yes, if Kodachrome is your primary concern, go with the Scan Dual III, since the Elite II isn't recommended for this purpose.—Bruce Fraser

Scanner Answers

KEN ALAN

I'm puzzled by something I read in your OS X-compatible scanner round-up

("Welcome Back," March 2003). I still have to return to OS 9 to scan with both my Nikon LS-2000 and brand-new HP Scanjet 3500c. David Weiss claims to have tested the 3500c in OS X 10.2.1, but Hewlett-Packard officially supports only OS X 10.1.X.

HP's OS X support has indeed been very frustrating. But we tested the 3500c using Jaguar, and we didn't have a single performance problem. The only difficulty we experienced was during the first installation, which aborted halfway through; after that, the 3500c worked fine. However, because several users told HP they were having trouble using the scanner in Jaguar, the company won't officially support the driver. If installation doesn't work the first time in Jaguar, I recommend trying it again, as I did.—David Weiss

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CORRECTIONS

Our review of USB Instant DVD (June 2003) listed the wrong price for Apple's DVD Studio Pro. The DVD-authoring software costs \$499.

We listed the wrong price for the Griffin PowerMate (*Mac Gems*, June 2003). It costs \$45.

Our review of SuperCard 4.0 (April 2003) listed the wrong URL for Solutions Etcetera. It's www.supercard.us.

Our review of SPSS 11 (June 2003) listed an incorrect upgrade price. Users of SPSS 10 can upgrade for \$299.

In our review of 4th Dimension 2003 Standard Edition (July 2003), we printed an incorrect mouse rating. The product's correct rating is ♦♦♦♦.

Apple's iTunes 4.0.1 update, which was released after our July 2003 issue—and its "Behind the Music" feature—went to press, does not let you share music with users outside a local network.

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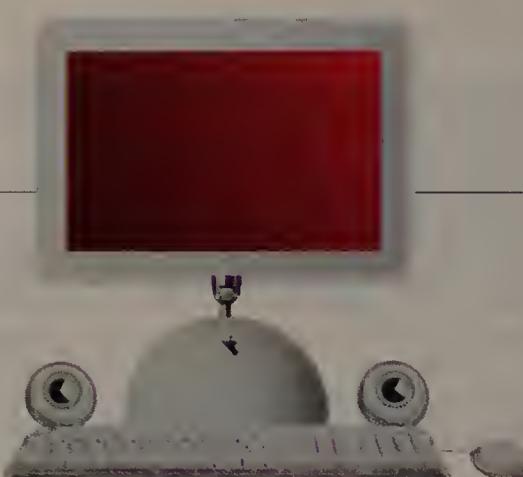
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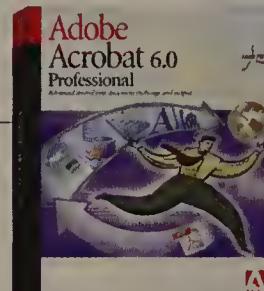


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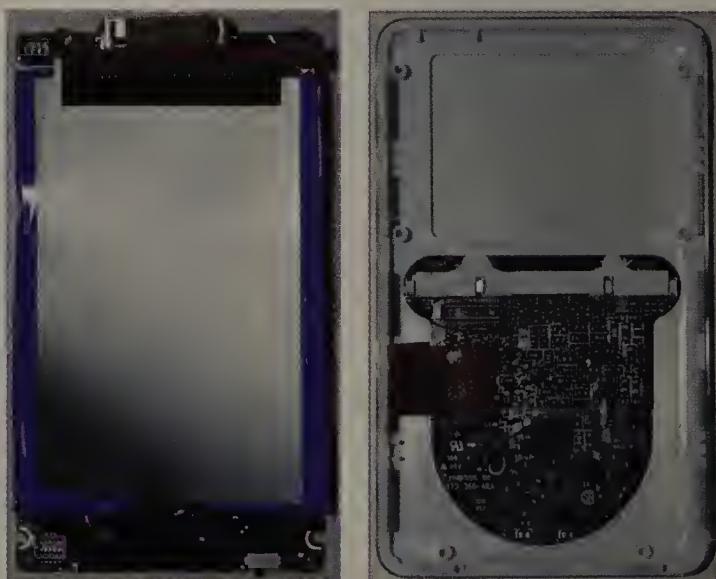
It's a Pod Party

Even though a few months have passed since Apple unveiled redesigned iPods, iTunes 4, and a brand-new online music store, the company's musical maneuvers continue to strike a chord with Mac users. Maybe it's because the new and updated products make Macs even more powerful, or because the combination of hardware, software, and services makes Apple's ballyhooed digital lifestyle a more tangible reality. Whatever the reason, folks can't seem to get enough of the latest smash hits—and neither can we. From new iPod accessories to playlist sharing in iTunes, here's how to get more out of your love of Macs and music. This party is just getting started.

The Mad iPod Scientist

You're probably not about to drop \$399 on a brand-new 15GB iPod and then pry it open to see what it looks like inside. But then again, you're probably not A. J. Fouladpour, who "dissects" iPods and then displays his work online at iPoding.com. When the iPod-accessory developer started the Web site in late 2001, he never intended to build a community. But after Fouladpour posted pictures of a disassembled 5GB iPod and instructions on how to reach the MP3 player's Diagnostic mode, "people showed up," he says. These days, iPoding.com has

more than 5,000 registered users. And no wonder—it's a fantastic resource for the iPod's devotees, with daily links to iPod news stories, a massive online forum full of iPod tips (such as how to use the iPod's calendaring abilities without iCal), and even an MP3 search engine. But what really catches the eye is Fouladpour's graphical documentation of his iPod surgeries—including looks at the original 20GB iPod and the new iPod dock in greater detail than Apple's warranty allows. Among other discoveries made during his iPod disassemblies, Fouladpour found that "the Synaptics touchpad-display daughterboard kind of looks like Mickey Mouse." But a more substantial discovery was the realization that Apple uses the



No Mickey Mouse Operation iPoding.com found that the iPod's touchpad-display daughterboard resembles a cartoon rodent.

Wolfson Microelectronics WM8731L codec in its new models—"a great little chip [that] opens the door to both voice recording and stereo line-in recording," according to Fouladpour. No word yet on whether voice playback will sound like Donald Duck.—MATTHEW HONAN

More Info:

www.ipoding.com/modules.php?op=modload&name=gallery&file=index&include=albums.php
Want to know what the insides of an iPod and its assorted accessories look like? Visit iPoding.com's galleries, and wonder no more.

So Much Music, So Many Accessories



The Griffin Technology iFM

The iPod you bought for Christmas is so last year—at least when it comes to accessories.

With the iPods Apple released in the spring, the company did away with the FireWire port on top of its MP3 player and instead went with a proprietary dock port at the bottom. Combining FireWire and USB connections, the iPod's new dock simplifies synchronization, according to Apple. But it also means that many accessories that hooked up to the iPod via the lone FireWire port won't work with the new models.

That's not a problem if you plan on

sticking with your old iPod. But people who want to upgrade to one of Apple's new models may need to find peripherals and add-ons that take the new iPod design into account. Fortunately, a host of new accessories that exploit the iPod's new port and fit with the device's snazzy slimmer style are now available.

Take Griffin Technology (615/399-7000, www.griffintechnology.com). "We have tons of stuff for the new iPod in the pipeline that we're going to work on getting out in the next few months," says Andrew Green, Griffin's vice president of marketing. First up is a revised version of iTrip, designed for the third-generation iPod. The \$35 FM transmitter plugs into the original iPod's headphone jack, using the FireWire port as an anchor (see "Dress Up Your iPod with Add-Ons," *Mac Beat*, May 2003). However, a remodeled iPod means that this design no longer works; owners of the new iPod can expect an updated iTrip to begin shipping in July.

But not every iPod-enhancing accessory needs an overhaul. Griffin's \$35 iFM, which allows your iPod to pick up radio stations, works with both old and new iPod models, as does the \$20 PowerPod auto adapter, also from Griffin. Check with vendors to see whether your favorite devices are compatible with the new iPods.

That said, accessory developers believe that the iPod's new port provides fresh opportunities for augmenting the portable music player. Griffin's Green is tight-lipped about specifics, but offers this: "What I can say is that the new dock connection with the iPod is for more than just audio." In other words, stay tuned during the months ahead for even more new iPod add-ons.—ADELIA CELLINI

Speaking of the Future...

People wondering how Apple might enhance tomorrow's iPod need only examine the iPod of today—specifically, the music player's hidden Diagnostic screen (which you access by pressing the Menu and play/pause buttons simultaneously and then—when the Apple logo appears—pressing the previous and next [double-arrow] buttons and the select button).

The first-generation iPod's Diagnostic screen included a Remote test, foreshadowing the arrival of a wired remote control. Given that history, the current iPod's Diagnostic screen bears two entries sure to interest iPod owners—Lin Rec (for Line

Record) and Record. The Lin Rec test hints that the iPod may one day record through the device's proprietary data port. The Record test proves that the iPod can record today. Just highlight the Record test, plug a microphone into the headphone port, press the select button, and start talking when the screen displays "Begin." After a few seconds you'll see "Done." Press the select button to hear your recording. Those seconds of your own voice probably won't take precious gigabytes away from your playlists, but the recording capabilities do give iPod lovers something to talk about.—CHRISTOPHER BREEN

The Right Angle

Apple's engineers had many things in mind when they assembled the new iPod's distinctive design. But your posture wasn't one of them, contends MacMice (615/822-9270, www.macmice.com). When the iPod is placed in its new dock, seeing the display without squinting or squatting is difficult. So MacMice came up with the \$20 PodPerch, an accessory dock that puts the music player at a low angle so you can sit comfortably on your high-back, soft-leather desk chair and still clearly read the LCD.—AC



RICK RIZNER

Batteries Included



The iPod boasts 8 hours of battery life—not great if you plan on spending most of the day away from a power source. So take along a \$59 Belkin Backup Battery Pack (800/223-5546, www.belkin.com). The Pack's four AA batteries provide 15 to 20 hours of extra playtime, even when the iPod's internal battery is dead. Suction cups secure the Pack to your iPod, and a power-level indicator tells you when the music is about to hit its final notes. Armed with the extra battery life, you and your iPod can explore the whole world.—AC

New Designs in the Bag

A new look for the iPod deserves a new look for the cases that carry and protect it—particularly if you want easy access to the dock port on the bottom of the new iPod. Several makers of iPod cases have already rolled out new looks for their products. WaterField Designs' \$40 iPod Case (877/546-1040, www.sfbags.com) has a hole on the bottom for the dock connector, so you can keep the iPod in its sleeve when you're ready to use the dock. A hole on the top of the case offers quick access to the hold button and headphone jack.



WaterField
Designs' iPod
Case

Like WaterField's offerings, Marware's \$40 SportSuit Convertible, \$28 CEO Glove, and \$25 SportSuit Basic (954/927-6031, www.marware.com) feature openings in the front and on the bottom for quick button and cable access.—AC

HARDWARE BEAT



Hardware

Power Supply

Two uninterruptible power-supply units from APC (877/272-2722, www.apc.com): The **Back-UPS RS 1000VA** (\$250) and **Back-UPS RS 1500VA** (\$300) offer more outlets and enough power protection for more than one computer. The 1500VA unit can take on an extra battery pack to triple its run-time capabilities.

Printers

Two multifunction devices from Brother (908/704-1700, www.brother.com): The **DCP-8020** (\$500) and **DCP-8025D** (\$600) print as many as 17 pages per minute at 2,400-by-600-dpi resolution. The devices also act as 9,600-by-9,600-dpi color scanners. The DCP-8025D has built-in automatic duplexing capabilities, for two-sided printing, and a 50-page multipurpose tray.

Two laser printers from Hewlett-Packard (800/888-0262, www.hp.com): Both models in the **HP Color LaserJet 1500** printer series print 4 color pages and 16 black-and-white pages per minute. The **1500L** (\$799) features one paper tray and a 125-sheet capacity. The **1500** (\$999) has two trays and a 375-sheet capacity.

Projectors

A portable digital projector from Epson (800/873-7766, www.epson.com): The **PowerLite S1** (\$999) features a brightness of 1,200 ANSI lumens, an 800-by-600-pixel resolution, a 400:1 contrast ratio, and a lamp rated at 2,000 hours.

System

A CPU-upgrade card from Other World Computing (800/275-4576, www.macsales.com): The **Mercury Extreme G4** (\$580) has a 1.3GHz G4 chip and is compatible with AGP-equipped Power Mac G4s.

A PCI FireWire card from Sonnet Technologies (949/587-3500, www.sonnettech.com): The **Allegro FW800 PCI** adapter card (\$90) allows owners of older Power Macs to upgrade their systems to take advantage of 1394b peripherals. The card features three FW800 ports and can be installed in the PCI slot of all Power Mac G4s except the Power Mac Cube. The card, which requires OS X 10.2.3 or later, will also work in many Power Mac G3 systems.

Software

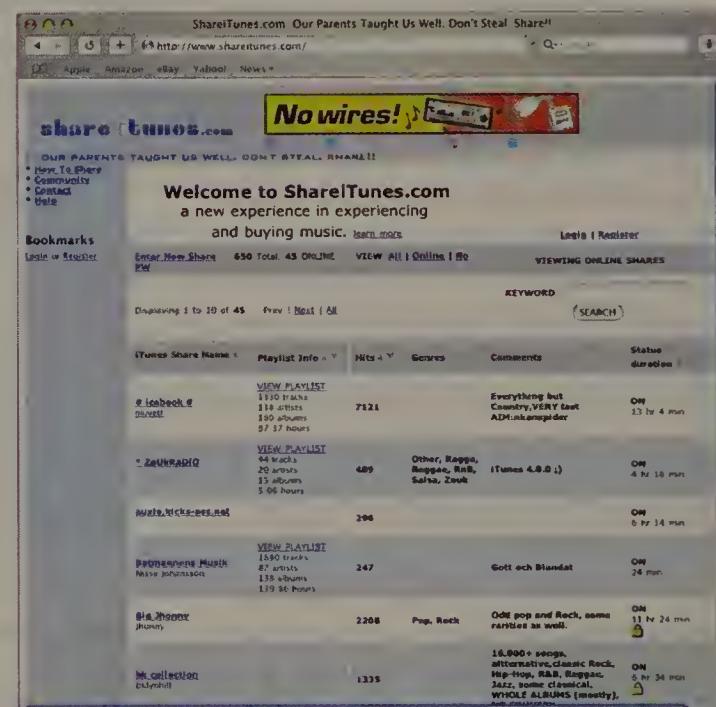
Printing

ESP Print Pro 4.4, from Easy Software Products (301/373-9600, www.easysw.com): The Unix printing program based on Common Unix Printing System technology adds support for OS X 10.2 and later. It also adds drivers for new Epson and Lexmark printers and supports printing of binary PostScript files to most printers (stand-alone download, \$49; multiuser license, \$245; upgrade, free).—COMPILED BY JAMES GALBRAITH AND PHILIP MICHAELS

ITUNES UPDATE NIXES INTERNET PLAYLIST SHARING—BUT MANY SITES PLAY ON

Share and Share Alike?

I'm listening to "Goin' Berzerk," Buckner & Garcia's toe-tapping musical tribute to the robot-shooting arcade game from the 1980s. Only I don't have the song—or, indeed, any of the tracks from the seminal 1982 album *Pac-Man Fever*—stored in my iTunes library. Instead, I'm listening to a stream of the song stored on another computer—a Mac in some far-flung locale, owned by someone I've never met before. And it's all thanks to iTunes 4's music-sharing capabilities and a Web site called iTuneShare (www.ituneshare.org).



The Day the Music Died ShareiTunes.com and other iTunes-sharing sites aren't compatible with Apple's iTunes 4.0.1 update.

After iTunes 4's release, several sharing Web sites cropped up, making it even easier to access and connect to playlists via the Internet. At iTuneShare, for example, all you had to do was click on an icon for an active site, and iTunes 4 would connect to the shared playlist. iTuneShare's creator, Ben Cheng, a Web programmer in New York, also added features that let you view playlists and jump to online music stores to buy albums you'd heard and liked.

But then came iTunes 4.0.1, an update that disabled Internet-based playlist sharing like the kind provided via iTuneShare and other sites. Apple officials said in a statement that the company never intended for users to stream music over the Internet to strangers and that seeing iTunes used in this way "surprised and disappointed"

them. Of course, Apple is worried about unscrupulous Internet surfers potentially using programs such as iLeech and iSlurp to copy music from shared playlists.

Still, Webmasters of music-sharing sites bristle at Apple's suggestion that they're abusing iTunes' sharing capabilities. Richard Yaker of ShareiTunes.com said that the idea to start the site came as he and cofounder Christian Bevecqua were experimenting with shared playlists. They thought it would be cool if there were a way to readily find and purchase music heard on a shared playlist. As a result, ShareiTunes.com includes links to Amazon.com, CD Baby, and the iTunes Music Store, for all the shared music listed on the site. Both iTuneShare and ShareiTunes.com have taken steps to thwart music-piracy programs by hiding IP addresses and host names so finding such data is more trouble for would-be thieves than it's worth. But even that isn't entirely foolproof, they concede. "The people that are stealing are going to find a way to steal no matter how many holes [Apple] closes," Yaker says. "All they did [with iTunes 4.0.1] was shut down people like us who were sharing music."

Actually, the iTunes 4.0.1 update also shuts down another group of users—those connecting to music stored on their home Mac from a remote location. iTunes 4.0.1 disables *all* music sharing over the Internet—not just sharing between strangers.

But some playlist-sharing iTunes users aren't ready to stop the music. Users who don't download the update can still share playlists over the Internet; they just won't recognize iTunes 4.0.1 libraries. And as we went to press, both iTuneShare and ShareiTunes.com were still up and running with no immediate plans to close down.

"As long as people find it useful, I'll leave it up," Cheng says. And as long as I can rock out to albums like *Pac-Man Fever*, I'll keep visiting.—PHILIP MICHAELS

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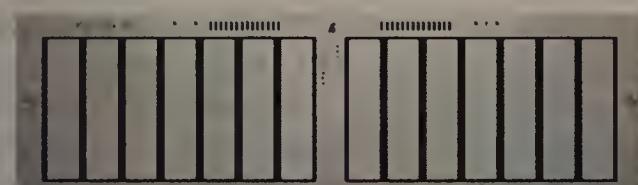
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Apple Xserve RAID



Apple Xserve



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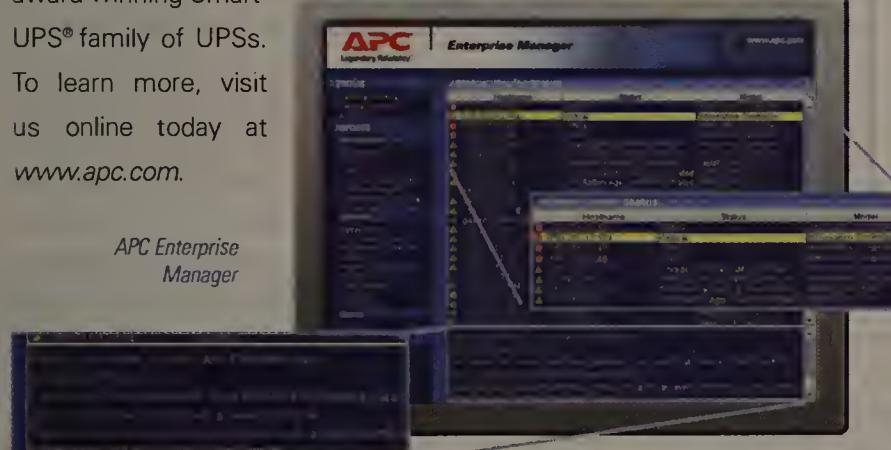
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CREATIVE BEAT



Hardware

Four color-calibration tools from GretagMacbeth (800/622-2384, www.gretagmacbeth.com): The **Eye-One Display** (\$249) calibrates and profiles LCD and CRT monitors with a device that attaches to the screen and with the accompanying Eye-One Match 2.0 software. **Eye-One Photo** (\$1,495) is aimed at photographers who need to calibrate and profile monitors and RGB printers. It includes the Eye-One Pro spectrophotometer, mounting hardware for CRTs and LCDs, and the Eye-One Match software. **Eye-One Publish** (\$2,695) is for creative professionals and print shops that use a CMYK workflow. The profiling and calibration package for monitors, scanners, and printers comes with the Eye-One Pro spectrophotometer and Eye-One Match 2.0. The **Eye-One Beamer** (\$1,595) calibrates and profiles monitors and digital projectors. It includes the Eye-One Pro, an Eye-One Beamer holder that lets you position the Beamer on a projector, and Eye-One Match 2.0.

Software

Font Management

Fontage 1.0.1, from ArcaneWare (www.arcaneware.com): The OS X font viewer has the ability to search for fonts and organize them into sets (\$23).

FontSight 1.2, from Stone Design (505/345-4800, www.stone.com): The application adds a WYSIWYG typeface menu to native applications running in OS X 10.1 or later. It also helps you install, view, and print fonts. This update allows you to show Favorite fonts and font collections in submenus (\$19).

Imaging

ProofMaster Adesso 1.10.2, from PerfectProof (888/228-9070, www.proofmaster.net): The RIP software works with Epson and Canon ink-jet printers so designers and photographers working in OS X can make more-accurate color proofs (\$499).

Announced

Support

Support for only OS X in the next major version of Photoshop, by Adobe (800/833-6687, www.adobe.com): Although the publishing-software giant hasn't confirmed the decision, sources close to the company told *Macworld* that the next version of the flagship image-editing program wouldn't run on OS 9. Photoshop 7 runs on both OS 9 and OS X. Adobe has not yet announced a release date or price for the next Photoshop version.

The end of development for the Mac version of Bryce, by Corel (800/772-6735, www.corel.com): The company cited sales-performance figures as the reason for the decision to drop the Mac version of the 3-D-landscaping and -animation program. Instead, Corel will focus on the Windows version.—COMPILED BY TERRI STONE

MAC DEVELOPERS ON TOP OF THEIR GAME AT ANNUAL TRADE SHOW

Game Play in the Pipeline

An online multiplayer game, a U.S. Army training simulator, and games featuring everyone from Batman to SpongeBob SquarePants are headed to a Mac near you, according to announcements made by top game developers during May's Electronic Entertainment Expo. The annual gaming trade show, known more familiarly as E3, is typically dominated by news of games for PCs and gaming consoles. But with the Mac gaming market growing, Mac gamers will have plenty to look forward to in the coming months.

First Looks At E3, the U.S. Army offered the first glimpse of America's Army (www.americasarmy.com) on a Mac. The free military-simulation action game, which runs on the same technology that powers Unreal Tournament 2003, should be out and available by the time you read this. The trade show also gave Gearbox (www.gearbox.com) its first opportunity to show gamers the PC version of Halo, the first-person shooter developed for Microsoft's Xbox by former Mac game maker Bungie. Gearbox has reworked Halo from the ground up with new and improved graphics and maps, new multiplayer modes, and other elements. Why should Mac users care? Because Halo is coming to OS X and the PC simultaneously later this summer, courtesy of MacSoft (763/231-8100, www.macsoftgames.com).

Blizzard's Brewings Blizzard Entertainment (800/953-7669, www.blizzard.com) announced that World of Warcraft—a massively multiplayer online role-playing game set in the world of Azeroth—would come to OS X. In World of Warcraft, players create characters of a variety of different races and classes, and interact with one another by the thousands. Blizzard expects to begin beta-testing the game later this year. The company also offered more details about the \$35 expansion pack for Warcraft III,

called The Frozen Throne, which should be shipping by the time you read this. The expansion pack will feature single-player campaigns and a "mini-RPG" level that's supposed to show off some of the enhancements to the World editor included with Warcraft.

Kidding Around Kids' game publisher Riverdeep (415/763-4700, www.riverdeep.net) offered a look at its fall and winter lineup of Mac-compatible titles—including new titles based on Batman, the resurgingly popular 1980's cartoon character Strawberry Shortcake, Japanese animation import Hamtarō, and the PBS animated series *Cyberchase*. Riverdeep also has plans for a new game featuring the Powerpuff



Craft Work When the Worlds of Warcraft beta comes out later this year, the game will feature new lands and a customizable interface.

Girls. Another popular educational-software maker, Scholastic (800/770-4662, www.scholastic.com), announced plans to release a variety of OS X-native games, including its original Math Missions series. Other planned Mac releases from Scholastic include games based on the PBS series *Clifford: The Big Red Dog*; *Dragon Tales*, a title based on the *Little Bill* TV show; and Nickelodeon Cartoon Creator, which features popular characters such as SpongeBob SquarePants and Jimmy Neutron.—PETER COHEN

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CLEANERS CAN HELP KEEP iPods AND iBOOKS POLISHED AND GLEAMING

Making a Clean Sweep

There are people who can take life's bumps and scrapes with nothing more than a shrug and maybe a few words about how scratches build character. But when it comes to my iBook and iPod, I am not one of them. Apple's slick white aesthetic brooks no blemishes, and I want my Mac gear to gleam like the gadgets in Apple's ads. So I put three cleaning and polishing products to the test.

iKlear Apple Polish, from Klear Screen, is the most versatile of these cleaners—it not only works on the iPod and iBook but also cleans DVDs, CDs, LCDs, CRTs, G3 and G4 towers, iMacs, and more. Available in a \$10, five-ounce spray bottle or as individually wrapped moist towelettes, Apple Polish cleans thoroughly and gently. It won't remove scratches, but it did make my iBook screen look like new and completely removed the built-up dust and residue from my iPod's buttons and scroll wheel.

Memorex designed OptiFix (\$10) to clean media such as CDs, DVDs, and video-game cartridges (see "Make Your Discs Come Clean"), and the company claims that the package's cleaning and repair solutions can also spruce up PDA and camera surfaces. I stuck to testing



them on the iPod and iBook cases—the OptiFix cleaning solution (the package includes two fluid ounces) left everything glowing, but the repair solution (ten milliliters) fixed only the tiniest scratches. With the more visible abrasions, it cried uncle.

The strongest product turned out to be iCleaner. This \$9 (for a one-ounce bottle) product, made by the company of the same name, is designed specifically for the iPod and the white iBook. Using iCleaner requires elbow grease and repetition.

After hours of buffing, all but the deepest scratches on my iPod and iBook were gone.

iCleaner's iCleaner Pro package (\$19) includes the cleaner and a stronger polish that targets the iPod's metal back and deep scratches on the front. This polish isn't easy to use: you have to apply it carefully with a gloved finger and follow it up with the regular iCleaner polish on the iPod's front. Results on my iPod's metal back were mixed. iCleaner Pro also demands repetition; after two hours, I still hadn't removed all the scratches. Given another five days or so, I think I could buff them all out. In the meantime, remind me again that scratches build character.—FRITH GOWAN

Cleaning Up

Here are three options for Mac users looking to keep their hardware free of dirt and scratches.

COMPANY	PRODUCT	PRICE	CONTACT	CLEANS
iCleaner	iCleaner	\$9	www.ipodcleaner.com	iPods, iBooks
Klear Screen	iKlear Apple Polish	\$10	800/505-5327, www.iklear.com	Macs, monitors, CD and DVD media
Memorex	OptiFix	\$10	562/906-2800, www.memorex.com	cameras, CD and DVD media, PDAs, other surfaces

Make Your Discs Come Clean

Even the most obsessive neat freaks reach a point where they'd rather have someone or something else step in to handle the cleaning duties. For these folks, Memorex offers its OptiFix cleaning and repair products in a special \$30 kit that promises to take care of CD- and DVD-polishing work. Choose a set of pads and solutions for cleaning or repair, plug the OptiFix Pro in, and press a button—soon your disc is spinning its way toward a state of clean shininess. The OptiFix Pro works on basic cleanup jobs, but it's no miracle worker—after I tried three times to repair a scratched Motley Crue CD, the disc still wouldn't play (although that may be for the best). I had more luck applying OptiFix's repair solution myself, proving that some cleanup jobs go more smoothly when you take matters into your own hands.—FRITH GOWAN



STORAGE BEAT

Hardware

Optical Drives

A DVD-recording device from Pioneer (www.pioneer-electronics.com): The **DVR-A06** (\$329), like the DVR-A05 mechanism featured in many newer Apple computers, can burn to DVD-R media at 4x speeds and to DVD-RW at 2x. But the A06 adds support for burning to DVD+R and DVD+RW media at the same speeds, allowing users to shop for DVD media based on price, not on punctuation. The DVR-A06 will be available by the time you read this; there's no word yet on whether Apple will offer these drives in upcoming systems.

RAID Storage

Two desktop RAID systems from Kano Technologies (714/379-5520, www.kanotechnologies.com): The **SureVault RAID Mirrored Desktop Storage** (prices start at \$795) is an external FireWire 400 and USB 2.0 storage system that writes to two drives simultaneously, maintaining a duplicate copy of your data. The **SureVault RAID 5 Desktop Storage** (prices start at \$1,345) stripes data across three drives simultaneously. FireWire 800 versions of the SureVault products are expected in late July.—COMPILED BY JAMES GALBRAITH



PRODUCTIVITY BEAT

Software

Contact Management

DayLite 1.4, from Marketcircle (888/287-9186, www.marketcircle.com): The contact and customer relationship-management app is now integrated with Blacksmith's Chartsmith charting app and has an exporter for Apple iCal (Business Edition, \$149; Personal Edition, \$95; update, free).

Development

Revolution 2.0, from Runtime Revolution (www.runrev.com): The software-development tool for multiple operating systems, including OS X, adds an XML library, SOAP support, an automatic report generator, and support for Unicode text entry and manipulation (professional single-user license, \$995; subscription renewal, \$299).

Networking

ADmitMac, from Thursby Software (817/478-5070, www.thursby.com): The networking software lets OS X 10.2 and later users participate in Microsoft networks, taking advantage of directory services provided by both Active Directory and NT Directory Services (single license, \$149; 5 licenses, \$599; 10 licenses, \$999).—COMPILED BY PHILIP MICHAELS

UTILITIES BEAT



Software

Data Management

Rocketinfo Desktop 2.0, from Rocketinfo (877/402-4636, www.rocketinfo.com): The utility gathers a wide array of Web-based information, including current general and business news, and lets you easily share it with others (\$69).

Serial Storage 2.7.1, from ArcaneWare (www.arcaneware.com): The OS X-only application organizes serial numbers, passwords, and credit card numbers securely, using 448-bit encryption. This update adds the ability to quit when inactive and wipe the clipboard clean, interface improvements, better integration with links, and an access log (\$20).

Wallet 1.0.3, from Waterfall Software (www.waterfallsw.com): The utility stores serial numbers, passwords, and credit card numbers securely, and also generates unique random passwords (single license, \$15; site license, \$95).

System

DiskWarrior 3.0, from Alsoft (281/353-4090, www.alsoft.com): The disk utility introduces OS X-native directory rebuilding for OS X Extended disks. It can run on disks using earlier versions of Mac OS. Also included are significant speed improvements, support for journaling, and integration with drives' built-in SMART technology to identify failing drives. The update retains the ability to compare the existing directory with the rebuilt one before any changes have been made (\$80; upgrade, \$40).

Path Finder 2.1.1, from CocoaTech (www.cocoatech.com): This update to the Finder-replacement utility formerly known as SNAX adds a relative-dates preference option, a view-text option (for when a file can't find its application), and support for DragThing (\$34).

QuicKeys X2, from CE Software (800/523-7638, www.quickeys.com): The updated automation application simplifies shortcut creation by watching and recording what you do and then playing it back with a trigger of your choice. A redesigned interface aims to make organizing and editing shortcuts easier. New shortcuts let you create your own pop-up menus, store clippings of images and text for quick access, and select buttons in a dialog box. QuicKeys X2 works with OS X 10.2.3 or later (\$100; upgrade from version 1.5, \$20; upgrade from version 1.0, \$35).

Spring Cleaning 6.0, from Aladdin Systems (800/732-8881, www.aladdinsys.com): The cleaning and privacy-protection software has been optimized for OS X. It also sports performance, organization, and privacy enhancements (\$50; upgrade, \$20).

SuperScrubber 1.1, from Jiiva (503/520-9500, www.jiiva.com): Changes to the military-grade disk-sanitization utility include major speed improvements, additional scrubbing operations, a double reminder to prevent accidental scrubbing, and an enhanced user interface (\$30; upgrade pricing not available at press time).—COMPILED BY JENNIFER BERGER

MACS AT WORK

Rock 'n' Roll Mac School

Winning Drexel Idols—a student-band competition at Drexel University—may not have the same cachet as winning *American Idol*. But unlike *Idol* winners Ruben Studdard and Kelly Clarkson, Drexel's rising stars get a lot of help from a Mac-powered recording studio at the engineering school in Philadelphia.

Drexel held its battle-of-the-bands contest to celebrate the launch of MAD Dragon Records, an in-house record label at the university and part of

Drexel's three-year-old music-industry bachelor's degree curriculum, which gives students a real-life introduction to the ins and outs of the pop-music biz. The centerpiece of the program—which teaches students how to manage talent, marketing, and distribution—is a \$250,000 professional-quality recording studio equipped with Macs and the latest in audio software.



For the Record Drexel President Constantine Papadakis (seated) gets a firsthand look at the school's Mac-powered recording studio.

Using a dual-1GHz Power Mac G4, students record directly to hard disks with Digidesign Pro Tools HD and Emagic Logic Audio. But before they're let loose in the big studio, students learn the basics in

a lab that has 16 900MHz G4s. Starting this fall, the 180 students in Drexel's music-industry program must own G4 laptops that they will bring to a new computer lab that has 30 docking stations, each containing hard disks and other essential peripherals.

While Wintel-based PCs might seem like the automatic choice for an engineering school such as Drexel, there was never any doubt about MAD Dragon turning to Macs. "All the software we use was originally released on the Macintosh," says Dr. Barry Atticks, the music-industry program's director. "And Apple has always catered to music and art people."—GREGG WRENN

Macs Get a Read on the Red Planet

This August, there will be roughly 35 million miles between Mars and the closest Mac. But that hasn't stopped two Southern California scientists from using OS X to develop a technique that might aid in the search for ancient life on our neighboring planet.

Frank Corsetti, an assistant professor of earth sciences at the University of Southern California, studies *stromatolites*, layered structures found in ancient rocks and believed to be fossils of early life-forms. But when you look at the layers in a three-billion-year-old rock, it's hard to tell whether they were created by microscopic bacteria or by some random process in which life played no part.

Michael Storrie-Lombardi, who until recently worked at the Center for Life Detection at NASA's Jet Propulsion Laboratory, proposed a possible solution to Corsetti's problem: scan a picture of the rock layers and compress the resulting image file using the Unix compression utility gzip, which is part of OS X. The smaller the resulting file, the likelier it is that biology was involved, because gzip works by looking for redundant data patterns. The presence of repeating patterns makes a case for the biological origin of the layers.

Corsetti says the Mac was a natural choice for the analysis. Both he and Storrie-Lombardi have multiple Macs at home and at work. Storrie-Lombardi used his 500MHz PowerBook G4 to develop the compression-analysis technique.

This technique is preliminary, but if it works on terrestrial samples, it could be applied to pictures of rocks on Mars, perhaps providing a crucial piece of evidence in the search for signs of ancient life there. Storrie-Lombardi is hopeful that the technique might also prove useful in biomedical analysis of X rays and other medical images.—HENRY BORTMAN



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Take Your CDs for a Spin



iTunes provides an easy way to quickly access all the music you've stored on your Mac. But what about finding the CDs that contain all those songs? BesTradeUSA (877/294-2979, www.bestradeusa.com) thinks its \$169 CD Library Manager could be the answer. The automated organizer is a circular CD sorter capable of storing as many as 150 CDs or DVDs. The software builds a database of your titles by extracting folder and file information any time

a CD or DVD is in your Mac's optical drive. The next time you need to find that disc, query the database: the CD Library Manager will spin to the appropriate slot and retrieve what you're looking for. Via a USB connection, you can daisy-chain multiple CD Library Managers together—as many as 127 units, according to BesTradeUSA—just in case you have a pressing need to store and retrieve 19,050 CDs and DVDs. You'll no longer have to remember whether that J. Geils Band CD comes before or after your Jay-Z albums.—ADELIA CELLINI

WHAT'S HOT

A Quick Look at the World of Macs

1. Microsoft and AOL Time Warner settle their lawsuit over Netscape. Under the deal's terms, Microsoft will pay AOL \$750 million and Bill Gates will get free HBO for life.

2. Sources say the next major version of Adobe Photoshop will run only in OS X. OS 9 holdouts vow to continue using the older operating system along with their Betamax VCRs, slide rules, and aging Pong consoles.

3. Macworld CreativePro Conference & Expo attendees delight to featured presentations from Quark's Jürgen Kurz, artist Peter Max, and other creative professionals. Sadly, comedian Carrot Top's session, "Using Your G4 Cube as a Comic Prop," was sparsely attended.

4. iTunes 4.0.1 update removes ability to share music over the Internet via Rendezvous. The update also adds a feature that allows music-industry executives to scold you whenever you loan CDs to friends.

UTILITY LETS MUSIC FANS SEE WHAT THEY'RE HEARING

iTunes from Cover to Cover

Rendezvous-enabled playlist sharing and compatibility with the iTunes Music Store may be the highlights of iTunes 4. But for anyone who appreciates a striking album cover, the ability to display album cover art ranks among the cleverer additions to Apple's music-playing app. Buy a track or an entire album from the iTunes Music Store, and you get an image of the album cover, which can appear either in the lower left-hand corner of the main iTunes 4 interface or in the Get Info window for a particular song. But what about all the CDs you burned into your iTunes library in the dark days before iTunes 4? You can individually scan in all the album covers you own, assuming you have a lot of free time and an unhealthy obsession with cover artwork. Or you can download Clutter, from Sproto Rsrch (www.sproto.com), and have the freeware do the work for you. Clutter has been updated

recently to automatically search on Amazon.com for album covers of the songs in your iTunes 4 library as you listen to them; it then copies the covers over to iTunes. But that's only part of Clutter's musical repertoire. Clutter also provides an alternative interface for controlling iTunes, letting you scatter album cover images on your desktop. Double-click on one of those CD

covers, and iTunes begins playing that CD. Clutter's Now Playing window displays both artwork for the song that's playing and buttons that let you pause, fast-forward, and rewind. Whether it's providing a different way of navigating through your iTunes library or augmenting your collection of album art, Clutter has got you covered.—PHILIP MICHAELS



Cover Me Clutter lets you control iTunes via album covers you've dragged to your desktop.



INPUT-DEVICE BEAT

Hardware

Mice

A wireless mouse-keyboard bundle from Logitech (800/231-7717, www.logitech.com): The **Cordless MX Duo** (\$100) combines the MX 700 rechargeable wireless optical mouse and the Cordless Elite Keyboard. The mouse uses RF cordless technology and rechargeable NiMH batteries. The cordless keyboard includes a navigation zone for scrolling and accessing Web sites as well as multimedia controls.

Software

Utilities

VirtualKeyboard X 2.0, from Corallo Software (www.corallossoftware.com): The new version of the input utility includes support for keyboard layouts of all languages using Latin characters, and it correctly displays the results of pressing shift, option, and other modifier-key combinations. The shareware is aimed primarily at Mac users with physical impairments who want to input text without using a keyboard.—COMPILED BY PHILIP MICHAELS

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MAC OS X INTERNET CLIENTS

MSN or AOL? Both Offer Mail Filters, Parental Controls in Bid for Subscribers.

BY PHILIP MICHAELS

For Mac users who want the Internet to be as easy to use and as unintimidating as possible, America Online (AOL) has long been the dominant Internet service provider. But the recent arrival of Microsoft's MSN for Mac OS X gives Mac users another choice: another subscription-based Internet service from a major player in the marketplace.

The OS X-only MSN client and AOL for OS X—released last year and updated in April 2003—face entirely new demands from a changing subscriber base. These days, OS X 10.2 includes e-mail (Mail) and a free messaging client (iChat), and with just a little savvy, almost anyone can set up a connection to the Internet. So AOL and, now, MSN find themselves competing for new subscribers by offering junk-mail filters and parental controls to families who want Web-browsing, e-mailing, and messaging in one application.

In truth, AOL and MSN offer very similar features. The differ-

ence is in the details, which contrast significantly enough to appeal to different types of users.

The E-mail Details

Whichever program you decide on, e-mail is the feature you're likely to spend the most time using. As with most of their features, AOL and MSN offer similar tools for tweaking an outgoing e-mail message's fonts, backgrounds, and colors, and for placing photos in a message's body (though AOL's implementation is more user-friendly by a hair, thanks to a dialog box that offers to resize photos so they fit within the body of the message).

Although the programs ultimately offer many of the same features, they present things in different ways. MSN's approach will be familiar to anyone who has used Entourage X, the e-mail and personal information manager included with Microsoft's Office v. X productivity suite. Like Entourage, MSN lets you assign color-coded cat-

egories to senders and individual messages. A preview pane below the in-box lets you see the content of messages without having to open them. MSN also copies Entourage's Address AutoComplete feature, which fills in e-mail addresses as you type, drawing from its list of e-mail addresses to which you've previously sent e-mail (AOL for OS X also has this feature, but only for addresses stored in AOL's Address Book).

In MSN, you can create folders for storing and sorting e-mail, and you can then drag and drop individual messages into the appropriate folder—these folders are offline, which means they're stored on your Mac, not on MSN's server. Unlike Entourage, however, MSN doesn't allow you to create rules that automatically direct incoming messages to specific folders. Also, any message you drop into an offline folder remains in the online in-box; this quirk will initially frustrate users accustomed to Entourage.

You've Got Unwanted Mail

MSN's most impressive e-mail feature is its sophisticated junk-mail filter. The feature allows you to set up lists of people from whom you'd like to receive e-mail, lists of senders you'd like to block, and customized filters that divert unwanted messages to a junk-mail folder. Worried that an e-mail from a friend might have been filtered by mistake? You can sort through the junk-mail folder and click on the Not Junk button when you see your friend's message.

AOL doesn't offer a junk-mail filter per se; the service gives you

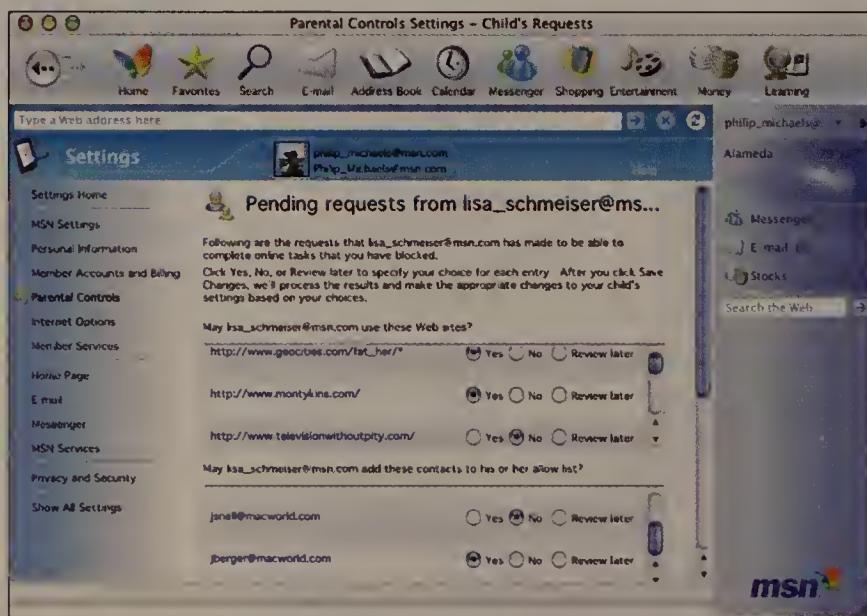
options for blocking or allowing e-mail from specified users, addresses, and domains. While that's helpful in keeping specific annoyances out of your hair, it's hardly an effective way of stopping spammers from flooding your in-box.

However, AOL for OS X has a new mailbox feature that in many ways is more effective than MSN's more elaborate filters and folders. A drop-down menu in the mailbox lets you sort mail from people you know (that is, names and e-mail addresses stored in your address book), bulk senders, and unknown users. Choosing Show Me Mail From Unknown Users filters out the e-mail you're sure you want, making it much easier to scroll through the remaining messages and find legitimate correspondence.

Parental Advisory

Both services allow you to set up multiple accounts within your main account—as many as six more screen names in AOL and as many as eight MSN subaccounts—so either program is ideal for families. It's no surprise, then, that both AOL and MSN prominently feature parental controls that allow you to put a limit on just how much each user can browse the Web, send e-mail, or instant-message other users.

But the two services emphasize different aspects of parental control. Both AOL and MSN offer general age-appropriate Web-browsing filters, but only MSN lets parents specify which Web sites are OK to visit and which are forbidden. When children are blocked from sites they want to go to, they can send an e-mail notification to a parent's account, asking that their mom or dad add the URL to the approved list. AOL limits control over Web browsing to its own preset age groups. If your child is blocked from visiting a



Mother, May I? With MSN's Parental Controls, kids can ask their parents to add blocked Web sites to the list of approved destinations.

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OUTSTANDING:

VERY GOOD:

GOOD:

FLAWED:

UNACCEPTABLE:



Time Is on Your Side AOL's Parental Controls let you set the hours your kids are allowed to sign on—and limit how long they can stay online.

site that you deem appropriate, you can't adjust the filter yourself; you can only ask AOL to reevaluate its decision.

With other parental controls, AOL far exceeds what MSN offers. Parents can use AOL's Online Timer to set the hours during which children are allowed online and a maximum amount of time per day. AOL's newly added AOL Guardian doesn't just send e-mail notifications when a child is blocked from visiting a site; it gives a complete report of online activities, from which sites the child successfully visited to how many e-mails were sent during a particular session.

Still, no system of parental controls is foolproof. While our tests found that AOL and MSN consistently blocked visits to adult Web sites, they were less successful when it came to preventing visits to e-commerce sites. In one test, in fact, we were able to place a hotel reservation through Expedia.com even though we were using an MSN screen name with parental controls recommended for a user between the ages of 13 and 17. That's not necessarily a failure on Microsoft's part—to place such a reservation, teenagers would have to get their hands on a valid credit card. Nevertheless, parents concerned about their kids'

online activity shouldn't allow even the most-sophisticated filters and controls to give them a false sense of security.

Ambling into Aqua

The companies built both programs specifically for OS X, adapting the appearance of each to fit in with the operating system's Aqua interface. The look is slightly more effective in MSN, from the drop shadows beneath toolbar icons to the round, glassy look of navigation buttons. AOL sports many of these touches, too, but the melding of Aqua's elegant look with AOL's cartoonish icons is simply too jarring. In addition, using AOL spawns so many windows that the interface gets confusing and cluttered; MSN restrains itself to one main window.

More important than appearance, however, is performance. Mac-based AOL members making the jump from the OS 9 client will be disappointed by the service's sluggish sign-on times in OS X 10.2. When we ran AOL 5.0 in OS X's Classic environment on a 450MHz Power Mac G4, it took us an average of 7.2 seconds to log in to AOL. When we ran AOL for OS X in OS X 10.2 on the same machine, it took an average of 23.4 seconds from the time we clicked on the Sign On button until the service was online and

ready for use—and we tested using a high-speed T1 line. Disabling the Buddy List panel, which takes an eternity to load, shaved 4 seconds off the average login time.

Since it has no client for the classic Mac OS, MSN for OS X is spared the burden of matching past performance. The average OS X login took 12.9 seconds. That's slower than AOL 5.0 running in Classic but still faster than AOL's OS X version.

AOL has a substantial edge over MSN in an area that's sure to resonate with Mac users who like to stay connected while traveling—portability. Say you take your PowerBook on a business trip. The AOL client features an Access Numbers button right on its sign-on screen; click on it and type in your location's area code, and AOL supplies you with several different access numbers—all while you're offline. MSN's Connection Settings feature requires that you enter the phone number from your current location, rather than a simple area code. MSN then dials a toll-free number to find access numbers for your location; only then can you dial up and use the service. It's a needless, time-consuming step that AOL long ago jettisoned, and MSN would be well advised to follow suit.

Macworld's Buying Advice

With AOL and MSN matching each other in terms of features, the question of which service is superior boils down to where your particular interests lie. Parents who want better control over which Web sites their children visit would be well advised to consider MSN; parents who want an extensive record of their kids' online activity may be better served by AOL. Users with a need for elaborately organized e-mail should turn to MSN;

travelers who value convenient online access can't go wrong with AOL (as long as they can find their way through AOL's elaborate pricing options). AOL users who haven't upgraded to the OS X version (a free upgrade for subscribers) should do so, even with the slower sign-on times—the enhancements to e-mail sorting will make it worth their while. For Mac-using AOL subscribers considering a move to MSN's Mac client, the decision will depend on whether a particular MSN feature strikes their fancy. Even then, they should consider that features change fast—the arrival of MSN for OS X will likely spur more-heated competition between the two providers, and the differences between them may rapidly decrease. □

AOL FOR MAC OS X

RATING:

PROS: Thorough online-activity reports for parents; enhanced e-mail-sorting features; easier to use when traveling.

CONS: Limited spam-filtering capabilities; inflexible parental Web-browsing controls; cluttered interface.

PRICE: unlimited modem dial-up access, \$24 per month; other pricing plans from \$5 (three hours of dial-up access) to \$55 (unlimited access, including cable modem) per month

OS COMPATIBILITY: Mac OS X

COMPANY: America Online, 800/574-1779, www.aol.com

MSN FOR MAC OS X

RATING:

PROS: Effective junk-mail filter; extensive Web controls for parents.

CONS: Needlessly complex way of looking up access numbers.

PRICE: unlimited modem dial-up access, \$22 per month; unlimited usage with existing ISP, \$10 per month or \$80 per year

OS COMPATIBILITY: Mac OS X

COMPANY: Microsoft, 866/896-6768, www.microsoft.com

REVIEWS

900MHz iBOOK

The Last of the G3s Gets a Small Update

BY JENNIFER BERGER

If your next new Mac must be an inexpensive portable, the recently updated 12.1-inch iBook is a great little machine to consider. Weighing just less than 5 pounds and priced at \$1,299, the midlevel model, which we tested, now runs at 900MHz (up from 800MHz), comes with 40GB of hard-drive space (up from 30GB), and has a slightly faster Combo drive (24x CD burning, up from 16x).

This iBook design is simple, cute, and small—almost identical to that of the previous generation. But we aren't convinced that it's pleasurable to use. First, the plastic keys made a brittle clicking sound when we typed, so the iBook felt more like a toy than a Mac. And second, the narrow keyboard may force you into an awkward posture, making the portable uncomfortable to use for long periods of time.

If you want to run OS 9 or OS X and use the Web, an e-mail program, a word processor, and even some of Apple's iLife apps, this iBook will really shine. But if you want a Mac you can really grow into, for advanced graphics or



other CPU-intensive work, this may not be the Mac for you: its older G3 processor may pose a compatibility problem later on.

So if you simply must have portability and can squeeze \$300 more out of your budget, the 12-inch PowerBook G4 (****; April 2003) may serve you better for a longer period of time. If a low price is most important, you might consider an eMac instead (see our review of the 1GHz model, on this page).

Macworld's Buying Advice

The iBook is excellent for the basics, but remember that it's the only Mac still using a G3 processor. We were also underwhelmed by the iBook's keyboard, but it may not bother everyone. □

RATING: ****½

PROS: Small size; performs general tasks very well.

CONS: Cramped keyboard; G3 processor might pose problems.

PRICE: \$1,299

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Apple Computer, 800/538-9696, www.apple.com

1GHZ eMAC

Apple's Best Desktop for Education Gets More Appealing

BY JENNIFER BERGER

A little can go a long way. So it is with Apple's eMac, the least-expensive Mac and an excellent computer for educational environments or anyone on a tight budget. With this revision, all eMacs get faster G4 processors—

800MHz and 1GHz, up from the original 700MHz—and a faster graphics card, the ATI Radeon 7500. (See the September 2002 issue for our review of the original eMac [****].)

The eMac comes in three configurations. The least-expensive model's price has dropped \$300 to \$799; this eMac has an 800MHz G4 processor, 128MB of memory, a 40GB hard drive, and a CD-ROM drive. The \$999 model has a 1GHz G4 chip, 128MB of memory, a 60GB hard drive, and a Combo drive. The \$1,299 model (which we tested) has the same 1GHz chip, twice as much memory (256MB), an 80GB hard drive, and a 4x SuperDrive.

All three eMacs still have 17-inch CRT displays, two FireWire ports, three USB ports (plus two on the keyboard), an Ethernet port, headphone and

audio line-in jacks, and a 56K-modem jack, as well as a security slot for attaching the Mac to a desk with cables. But you

may find that the eMac sits too low on a desk for adult use and that its all-encompassing case makes it difficult to upgrade.

Macworld's Buying Advice

This revision strengthens the eMac's position as the best Mac desktop for education environments, and the eMac retains its endearing qualities: a squat, heavy, kid-resistant exterior; easy-to-use programs; and an intuitive operating system. But it's also a great choice for everyday consumers who need only the basics. □

RATING: ****½

PROS: Lots of power for the price; heavy, damage-resistant design.

CONS: Sits low on desk; limited upgrade options.

PRICE: \$1,299

OS COMPATIBILITY: Mac OS X (models with CD-ROM and Combo drive also boot into OS 9)

COMPANY: Apple Computer, 800/538-9696, www.apple.com

	Speedmark 3.2	iMovie 2.1.2	iTunes 3	Quake III v1.30b5	Cinema 4D XL 7.303	Adobe Photoshop 7
	OVERALL SCORE	RENDER	MP3 ENCODE	FRAME RATE	3-D RENDER	SUITE
Apple eMac G4/1GHz	138	0:46	0:46	53.1	7:26	0:57
Apple eMac G4/700MHz	101	1:02	1:04	43.0	10:44	1:17
Apple 17-Inch iMac G4/1GHz	133	0:48	0:47	63.1	7:39	0:58
Apple Power Mac G4/1GHz (DDR)	156	0:41	0:40	76.1	6:55	0:530
Apple 12.1-Inch iBook G3/900MHz	111	1:04	1:14	52.6	7:47	1:46
Apple 14.1-Inch iBook G3/800MHz	109	1:12	1:21	49.1	8:25	1:57
Apple 12-Inch PowerBook G4/867MHz	116	0:53	0:55	58.1	8:44	1:05
	>Better	<Better	<Better	>Better	<Better	<Better

BEST RESULTS IN BOLD. REFERENCE SYSTEMS IN ITALICS.

Speedmark 3.2 scores are relative to those of a 700MHz eMac (with Mac OS X 10.2.1 installed and 256MB of RAM), which is assigned a score of 100. Photoshop, iMovie, Cinema 4D XL, and iTunes scores are in minutes:seconds. Quake scores are in frames per second. We tested each system with Mac OS X 10.2.6 installed and 256MB of RAM. We set displays to 1,024-by-768-pixel resolution and 24-bit color. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long, converting it from the hard drive using iTunes' Better Quality setting. We tested Quake III at a resolution of 1,024 by 768 pixels with graphics set to High Quality. For the Photoshop Suite test, the desktop systems are upgraded to 512MB of RAM (the iBooks have 128MB of RAM built in, to which we added 512MB for a total of 640MB); the suite is a set of ten scripted tasks using a 50MB file. Photoshop's memory was set to 100 percent and History was set to Minimum. For more information on Speedmark 3.2, visit www.macworld.com/speedmark.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JEFFY K. MILSTEAD

EDITORS' NOTE: As reported earlier (*Feedback*, July 2003), the test results accompanying the review of Mac laptops in our February 2003 issue were flawed. In addition, the iBook (800MHz) test results in our April 2003 issue (in the review of the 12-inch PowerBook G4) were incorrect, due to an installation problem that has been corrected. The correct 800MHz iBook test results are printed in this chart and serve as a correction. We regret the error.

PAINTER 8

Unparalleled Natural-Media Painting Tool Gets a Much-Needed Interface Redesign and New Brushes

BY BEN LONG

Corel Painter has been around for a long time. Though it doesn't have the household-name status of Adobe Photoshop, Painter is a must-have package for digital painters, special-effects artists, and multimedia creators who need a wide variety of high-quality digital-painting tools. Painter's strength lies in its natural-media features, which expertly mimic real-world media and tools. These tools don't just lay down colored pixels; they intelligently calculate strokes that look like paint, ink, chalk, pencils, pastels—any number of different media. With version 8, Corel has revamped Painter's interface once again and added a ton of new tools.

Interface Version 8

Painter's Achilles' heel has always been its interface. In version 6, the interface finally started to make some sense, but it wasn't quite what it could've been. Finding an efficient way to present all of the many tools and variants has been a problem for Painter's developers, but with version 8, they've hit upon the best system yet. If you've found Painter's interface too confusing in the past, you won't now. The program's new look-and-feel makes Painter deserve another chance (see "Needle in a Well-Organized Haystack").

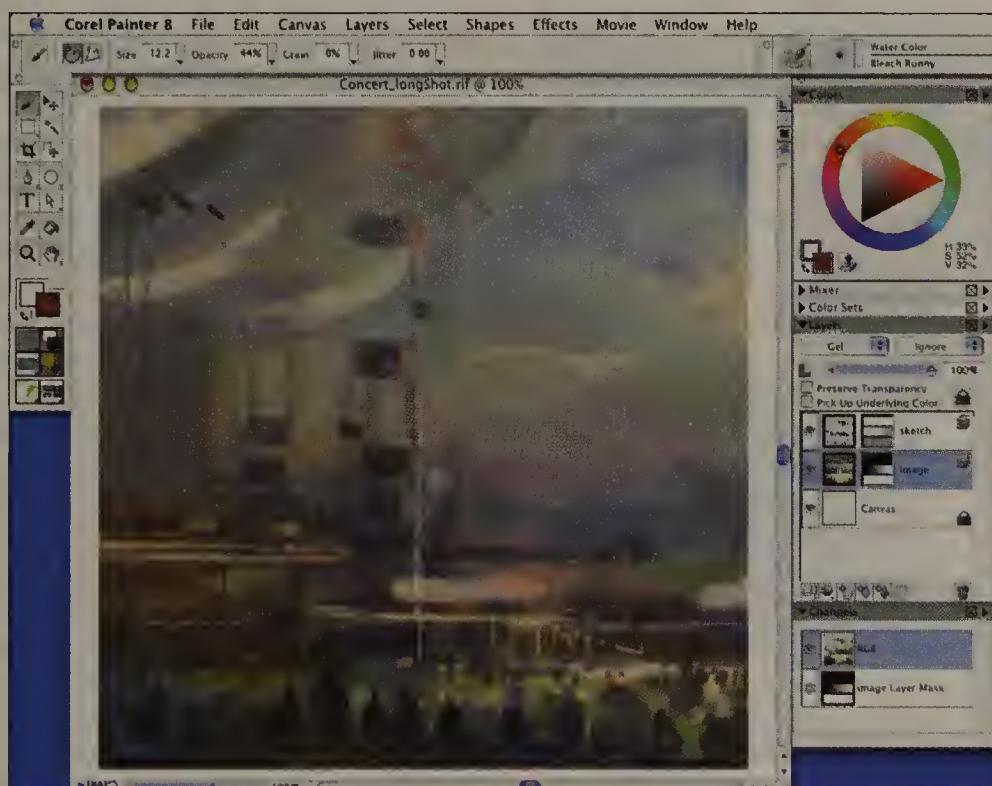
A number of changes are immediately obvious. The size of the floating tool palettes has shrunk considerably, resulting in a more economical use of screen real estate.

For several versions, Painter's main toolbox resided in a horizontal palette on the right side of the screen, making it fundamentally different from every other painting toolbox, going back to the first version of MacPaint.

Corel has finally righted things by moving the toolbox to the customary upper left side and making the palette vertical. And the palette floats, of course, so you can move it back to the right side if you're feeling a little nostalgic.

selecting your brush type and the variant you want; the Property Bar replaces the Controls palette, sitting just below the menu bar and displaying the most frequently used controls and parameters for each tool. Now you can find the tool you want and modify it without interrupting your painting workflow.

Though Painter was the first bitmap graphics program to offer layers, the program's layer



Needle in a Well-Organized Haystack The new interface in Painter 8 makes it much easier to find the brush you want and make the modifications you need. This interface also consumes much less screen real estate than that of previous versions.

While most painting and image-editing programs have half a dozen brush tools—a paintbrush, an airbrush, a pencil, and so on—Painter has literally hundreds. As in previous versions, these brushes are grouped into 32 types, including oils, pencils, pastels, chalk, and watercolors. Each type then has a huge assortment of variants. For example, you can select from 30 different types of pencils, ranging from a No. 2 pencil to a mechanical pencil. You're also free to modify any of these brushes to create your own.

Gone is the Brush palette with its multiple modes and pop-up menus. In its place are two small, floating toolbars: the Brush Selector provides two simple pop-up menus for

and selection features have never been as streamlined as Photoshop's, until now. The new Channels palette finally gives you a familiar, easy way to save and manage selections, while the Layers palette now offers Photoshop-compatible layer masks that let you easily mask part of a layer. Unfortunately, you still can't unlock the bottom layer to make it float, as you can in Photoshop, so if you need to place your image on a transparent background, expect to do some extra masking.

Regardless of these improvements, new users may find version 8's interface overwhelming. Learning to navigate through the 22 available palettes takes time. Fortunately, most of the tools and features you need

often are available up front in a few simple palettes.

New Tools

Painter 8 has more than a new look. It has lots of important new tools, including more than 400 new brush variants spread over the 32 brush categories—an even wider assortment of the excellent brushes that Painter users have come to expect.

The new Mixer palette, which emulates a real-world painter's palette, seems like such an obvious natural-media tool that we can't believe it's only now showing up in the program. You can use the Brush and Palette Knife tools to smear and blend colors on the Mixer palette to get just the right hue. Color wells at the top of the palette let you store the colors you're using in your document, and you can easily move color sets from the Mixer into other documents.

Macworld's Buying Advice

If you're a current Painter user, we can't recommend this upgrade emphatically enough. Although you'll have to relearn how to do some things, version 8's interface changes are so intuitive and reasonable that you'll be glad you made the switch. Painter

won't turn you into a great artist, but if you're used to real-world media and tools, you'll be astonished at how well the program mimics what you already know—with no muss, fuss, or fumes. □

RATING: 4 1/2

PROS: Much-improved interface; dramatic number of new brushes; many new, valuable features and tools.

CONS: Tough learning curve if you want to learn everything the program can do.

PRICE: \$299; through academic resellers, \$99; upgrade, \$149

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Corel, 800/772-6735, www.corel.com

SORENSEN SQUEEZE 3 COMPRESSION SUITE

Utility for QuickTime, Flash, and MPEG-4 Is Easy to Use but Doesn't Completely Ease Editing Workflow

BY CHRISTOPHER BREEN

Competently compressing video is an exercise in compromise—you must balance image and audio quality with available bandwidth (see “Squeeze Play,” page 80). But making the right choices can be difficult even for video mavens. Like Discreet’s \$599 Cleaner 6.0 (4 stars; June 2003), Sorenson Media’s \$449 Sorenson Squeeze 3.1 Compression Suite takes much of the guesswork out of compressing movies intended for delivery on the Web, CD, or DVD. Unlike Cleaner, Squeeze sports the simplest of interfaces; it also supports fewer output formats.

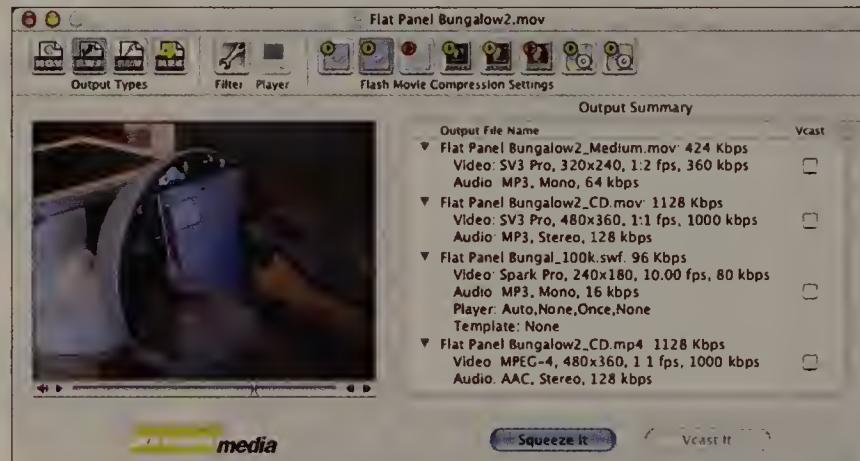
Suite Deal

Sorenson Squeeze 3 Compression Suite provides the capabilities of three separate Sorenson applications—Sorenson Video 3.1 Pro Codec, Sorenson Squeeze 3 for Macromedia Flash MX, and Sorenson Squeeze 3 for MPEG-4—in a single program. (Regrettably, Sorenson no longer offers the \$299 QuickTime-only version of Squeeze.) Using the suite, you can output video files in QuickTime, Flash, or MPEG-4—formats that are common on the Mac. Windows Media and RealMedia are the most common formats for movies intended for Windows users. Unfortunately, the Mac version of Sorenson Squeeze 3 Compression Suite supports neither of these formats (MPEG-1 and MPEG-2 encoding is also conspicuously missing from the Mac version), although the Windows version of the suite does. To deliver media in these formats, you must turn instead to the more expensive (and fuller-featured) Cleaner.

Squeeze is extremely easy to use. If you know the format of the movie you’d like to generate and its delivery method, just

click on a couple of buttons and wait for your movie to compress. You accomplish this with three sets of buttons that represent Squeeze’s workflow. The first set determines the movie’s output format—QuickTime, Flash SWF (viewable with Macromedia’s Flash Player), Flash FLV (viewable with Macromedia’s Flash MX), or MPEG-4. The second set provides access to

adjustments to both filter and compression settings. When you click on the Filter button, the pane that appears offers the expected options for adjusting contrast, brightness, gamma, and white and black restore. You can also choose to fade your movie in and out, normalize audio, reduce video noise, crop your movie to fit standard or custom aspect ratios, or deinterlace the video. Squeeze doesn’t have Cleaner’s A/B preview feature, which allows you to compare unprocessed video with video that you’ve applied filters to. This omission makes it difficult to tell whether you’ve strayed too far from the original.



Embracing Squeeze By clicking on just a few buttons, you can compress multiple versions of your video without having to use multiple applications.

video-filter settings (which let you alter the movie’s brightness and contrast levels, for instance) and—if you’ve chosen to save your movie in a Flash format—Flash Player options. The buttons in the third group denote default compression settings for movies intended for streaming, progressive download, and network or CD delivery. To create multiple versions of your movie for various delivery types and speeds, click on the appropriate presets. Alas, the ability to create multiple versions doesn’t go far enough. Unlike Cleaner, Squeeze can’t generate the QuickTime reference movies necessary to stream versions of your movie optimized for specific bandwidths.

All Work, No Play

Squeeze’s simple design doesn’t prevent you from making fine

can open custom settings only from within the Filter and Compression panes.

Squeeze does include some nice touches. It allows you to capture video from any digital source and bring it directly into the program. You can also batch-process movie files by dropping them into a Watch folder and directing Squeeze to compress the contents of that folder. And if you have an account with Sorenson’s Webcasting service, Vcast, you can deliver compressed video straight from Squeeze to Vcast by clicking on the Vcast It button. Compression Suite also supports Flash stitching—a process that allows you to overcome the file-size limitations on Flash files by breaking large files into smaller parts and playing the parts in succession.

Macworld’s Buying Advice

If you need compressed video only in the QuickTime, Flash, and MPEG-4 formats, and if you need an all-in-one suite, you should consider Sorenson Squeeze 3.1 Compression Suite. Despite its occasionally inflexible interface, it offers the easiest way to apply professional-quality compression to movies. People who need video compressed in the Windows Media and RealMedia formats should look into Cleaner. And if QuickTime movies are all you desire, the \$299 Sorenson Video 3.1 Pro Codec, coupled with Apple’s QuickTime Pro, offers similar quality at a savings of \$150. □

RATING: 4 1/2

PROS: Very easy to use; provides professional-quality compression; helpful Flash-stitching capabilities.

CONS: Doesn’t support popular Windows compression formats; missing some features that the Windows version includes; creating and retrieving custom settings are clumsy; no way to make QuickTime reference movies; lacks A/B preview feature.

PRICE: \$449

OS COMPATIBILITY: Mac OS X

COMPANY: Sorenson Media, 801/287-9400, www.sorenson.com

FORMZ 4.0

Retooled 3-D Modeler Throws Users Some New Curves

BY SEAN WAGSTAFF

The program formZ, from autodesk, is a reliable, accurate solids and surface modeler and renderer used in architectural design (where it has its most dedicated following), visualization, illustration, and dynamic media. But formZ's fourth edition has been a long time coming.

Version 4.0 reveals at least one reason for the delay: a complete reengineering of the software's underlying code has made the program OS X native and faster across the board. The improved speed is due in part to a new, timesaving network rendering system, which is included with the \$500 RenderZone option. Perhaps more important, formZ's new architecture lets you disable features so you can conserve memory and reduce interface clutter. formZ also has new tools and features that can be added as plug-ins.

A Plug-in Architecture

Architects have long been accustomed to Autodesk's AutoCAD and Bentley Systems' MicroStation, programs that let you add features in response to specific production requirements. So formZ's flexible new plug-in architecture is a welcome change from the program's previous incarnation. And autodesk introduced new formZ plug-ins with this release, including a \$300 Sketch Rendering plug-in, a \$350 STEP Translator plug-in, and a \$350 Point Cloud Re-engineering plug-in.

We tested the Point Cloud Re-engineering plug-in, which lets you create a polygonal or nonuniform rational B-splines (NURBS) surface through points generated by an input device such as a 3-D scanner, and lets you reengineer polygonal objects into NURBS objects. This plug-in is remarkably useful.

The scripting and plug-in technology won't be made pub-

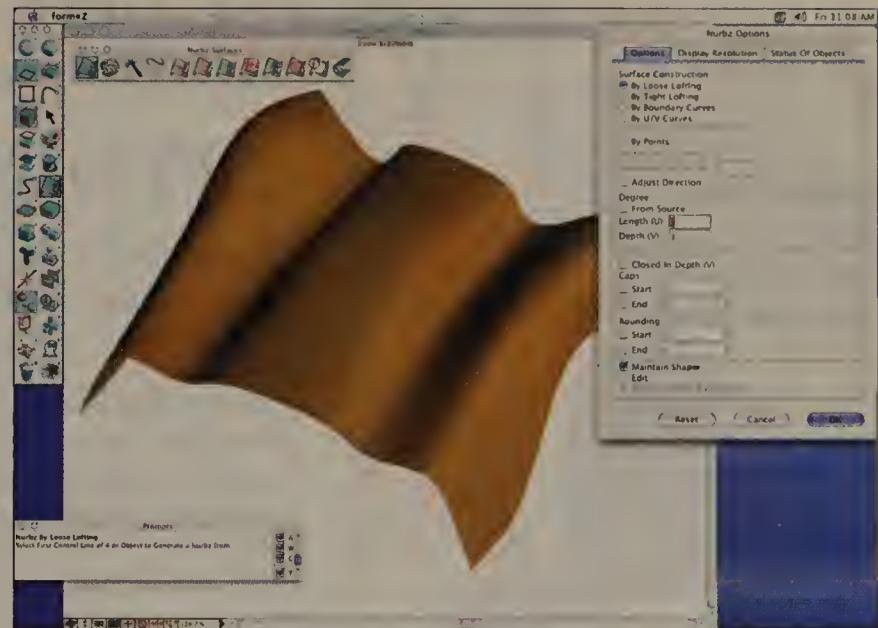
lic for several months, so it could be some time before third-party plug-ins are available.

But while you wait, you can take advantage of the network renderer, new to this version of formZ. It uses a server application that runs on any machine in your network (PC or Mac); the client software is installed on other network computers via a TCP/IP-connected LAN or WAN. The user sends jobs to the server, which in turn farms out the project to the clients and reassembles the resulting renderings on the user's Mac. If you're producing large numbers of rendered images and you have idle Macs or PCs to conscript into service, this feature can dramatically boost productivity.

Feature Lag

While autodesk was rebuilding formZ from the ground up, competitors such as Alias|Wavefront, Electric Image, and NewTek were giving their products much-desired features, such as subdivision-surface modeling, and making dramatic improvements to interactivity, through effective OpenGL support. As a result, users expect these features in any modeling application.

The biggest change in formZ's modeling options is a new palette of Nurbz tools (autodesk's name for NURBS) and corresponding smooth-curve tools that allow you to accurately model the multipatch surfaces ideal for creating shapes such as car bodies. The new Nurbz tools are a breakthrough for formZ, which previously wasn't adept at making shapes with accurate compound curves, but we found that some features of the Nurbz tool set need more work. For example, projecting curves on a surface rarely produces the expected result, and it's impossible to create NURBS patches from a mix of closed curves and open construction lines.



NURBS Is the Word The Nurbz tools in formZ aren't as mature as the spline tools in other programs, but they let you create complex, smoothly blended curved surfaces.

Meanwhile, the NURBS technology itself, while essential to industrial design, is quickly losing favor in many kinds of visual work where the ability to build a good-looking, seamless model quickly and with adjustable resolution is more important than the precision of the resulting shapes. Although formZ's quadrangle and tessellated subdivisions offer polygonal meshing and smoothing of objects, they lack the interactive, resolution-independent subdivision surfaces found in competing animation systems Universe, Maya, LightWave 3D, and Cinema 4D. On the other hand, formZ's solid and smooth parametric surface tools offer an accuracy and a depth of modeling control that those programs don't match.

New Unfamiliar Face

formZ has redesigned tool palettes and icons that better communicate what its tools do. More important, the user preferences in formZ have been completely reorganized, so customizing the software and fine-tuning the tools and modeling operations are less intimidating. Unfortunately, formZ still treats OpenGL as an afterthought. For example, there's no usable wire-frame-over-shaded view, a view that offers the best utility and visual feedback in other 3-D applications. A final complaint about the interface is that there's no fast, intuitive way to change either the point of view or the snapping options in the middle of modeling operations.

Users of similar programs are increasingly accustomed to interfaces—such as Maya's—that offer on-the-fly keyboard-driven navigation and usable full-time hardware shading, so formZ's point-of-view navigation interface will seem old hat.

Macworld's Buying Advice

For loyal users of the program, formZ 4.0 is an exciting upgrade. Still unmatched as a solids and surface modeler and renderer, the program is finally ready for OS X, and it has many important productivity changes. The new network renderer is a breakthrough for artists who need to free up their desktops. However, these productivity changes don't bring improvements to the program's interactivity, and the NURBS tools, while welcome, need work.

Whether formZ's new architecture will pay off for users depends on when autodesk and third parties step in with more plug-in features. □

RATING:

PROS: Unmatched solids and parametric surface modeling; NURBS tools for smooth surfaces; network-based renderer.

CONS: Outdated interactivity, navigation, and shaded-mode modeling options; no NURBS-based subdivision surfaces.

PRICE: \$1,495; upgrade, from \$345 to \$595, depending on version

OS COMPATIBILITY: Mac OS X

COMPANY: autodesk, 614/488-8838, www.formz.com

PUPPY

Fingerprint Authentication
for
Mac OS X



Your fingerprint
is your password.



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REVIEWS

LIFT NN/G

Guidelines by Design Gurus Add Value to Web-Site Accessibility Tool

BY LISA SCHMEISER

Ensuring that a Web site is accessible to people with physical disabilities is a longtime concern for Web designers and programmers. The rise of more-complex Web pages, a proliferation of Web browsers, and the federal government's Section 508 accessibility guidelines make designing and testing Web sites for maximum accessibility a great deal of work.

The screenshot shows the Lift NN/G software interface. On the left, a sidebar lists various test categories like 'Evaluate', 'Customize', 'Design', 'Code', etc. The main pane displays a list of accessibility rules, such as 'Avoid automatically created text-only pages [NNg-ACC 10]', 'Avoid large tables [NNg-ACC 68]', and 'Avoid too short text links or button labels [NNg-ACC 10]'. A specific rule, 'Avoid too short text links or button labels [NNg-ACC 10]', is selected and expanded. To the right of the rule, there is a detailed description of what it means, how it applies to the code, and a suggested solution. The bottom of the window shows the Lift Nielsen Norman Group logo.

Problem and Solution Selecting a test-result entry brings up a clear explanation of that result, as well as a suggested solution.

UsableNet eased this burden with Lift Onsite (4½; February 2002), and the company's latest product, Lift for Macromedia Dreamweaver—Nielsen Norman Group Edition (Lift NN/g), promises to make ensuring accessibility even easier. The program helps you implement the accessibility standards of the Nielsen Norman Group, founded by design pundits Donald Norman and Jakob Nielsen. Their guidelines form the basis of the tests you can use to determine whether your Web site is accessible. The real benefit of the NN/g guidelines is that they incorporate criteria from two sets of accessibility recommendations—the W3C's Web Content Accessibility Guidelines (WCAG) and the Section 508 requirements—as well as the results of the Nielsen Norman Group's research, in one simple set of rules.

The Key to the Castle

Installing Lift NN/g is a snap, provided you use Macromedia Dreamweaver UltraDev 4.01 or later, or Dreamweaver MX. If you don't, you're out of luck; while other UsableNet products offer accessibility testing, Lift NN/g is the only one that comes with the Nielsen Norman Group's guidelines.

Lift NN/g adds its eponymous menu to Dreamweaver, so you can access all of Lift

NN/g's functions from the menu as you create or test a Web site. Using Lift NN/g is easy; you open a page in Dreamweaver, select the Evaluate option from the Lift NN/g menu, and choose the set of guidelines by which you'd like to evaluate the site. You can select the Nielsen Norman Group's guidelines or another option such as the Section 508 guidelines or WCAG. Users can also customize their guidelines if they want to set up their own accessibility criteria.

You then set the scope of your evaluation, from a single file to a folder to an entire site. Once Lift NN/g has evaluated your code, you can click on individual test messages; in a reference panel to the messages' right, a concise explanation for the error appears (see "Problem and Solution"). Testers who want to learn more can continue to read through any of the reference materials available in the panel. You can then fix the error with the Fix wizard, which is useful for on-the-fly corrections but not as helpful when you're trying to puzzle out how one correction will affect your entire site. For example, the WCAG and Section 508 test results both advised us to eliminate a style sheet in our sample site, but none of the tools offered an aesthetically feasible alternative.

In testing our site, we would have liked a way to display comparative accessibility tests for one site, which would let people see exactly how much work they'd have to do to make the site optimally error-free. You can run a report based on each evaluation run, but if you want to compare the results, you must do the legwork yourself.

Macworld's Buying Advice

Fans of the Nielsen Norman Group's Web-accessibility guidelines will benefit greatly from this thorough and useful testing tool, as will Dreamweaver buffs. The references are invaluable, as are the tools for tracking and fixing errors found during testing. □

RATING:

PROS: Easy to use; readily accessible reference resources; errors are clearly explained; easy-to-read site-testing results.

CONS: Compatible only with recent versions of Dreamweaver; no quick and easy way to compare reports based on different tests.

PRICE: \$549

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: UsableNet, 212/965-5388,
www.usablenet.com

MARKZTOOLS 5

Anticorruption and First-Aid Package for XPress Files Helps Avert Disaster

BY SANDEE COHEN

In a perfect world, QuarkXPress files would never become corrupted; nothing would ever go wrong while saving a document; and everyone would have the most recent version of XPress. But our world is not so perfect. That's why Markzware created MarkzTools, a Quark XTension that assists with XPress files. It's easy to use: most of the features you need are in the custom MarkzTools dialog box for opening documents. But for those who already know the value of this product, the latest release—MarkzTools 5—doesn't offer any new features apart from the ability to work with XPress 5. (An XPress 6-compatible version of MarkzTools is in the works, but Markzware didn't have a release date at press time.)

Prevention and Recovery

Whether your network connection sometimes breaks as you're saving a file, or whether there's a risk of corruption for other reasons, MarkzTools provides you with three contingencies. The Safety Save module saves a temporary copy of the document before it is saved over the network. And if a file is corrupted, for example, due to age or "gremlins," the Salvage module can help recover the document. If the Salvage module fails, the Scavenge Text module can help recover text. It's not perfect, but it's better than trying to re-create hours of lost work.

Rather than face the consequences of corrupted files, you can use the Verification module to check the integrity of files as you open them. You can then repair suspect files by dragging the thumbnail pages of the damaged file into a new, healthy one.

Version Control

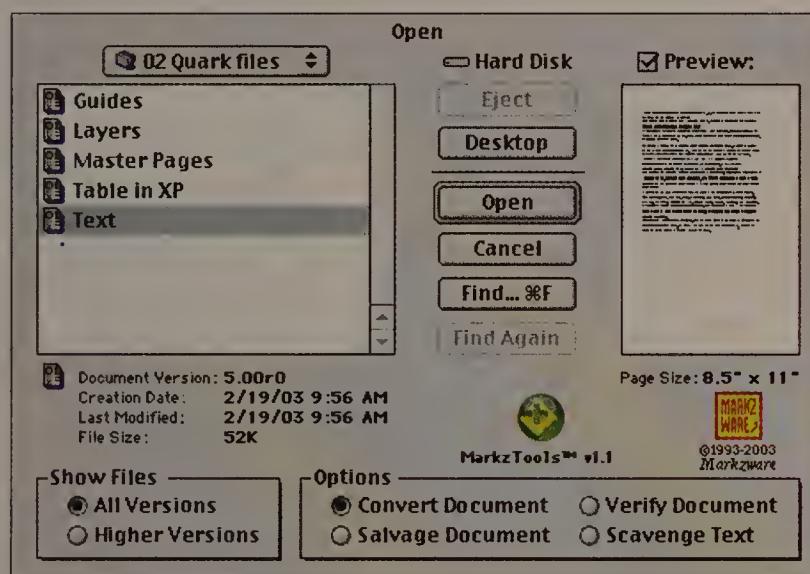
Just because you can't open a file doesn't mean it's corrupted. For instance, XPress 4 can't open version 5 files. Imagine if your studio works with version 4 and an editor or production house sends you a file saved in version 5 format. Sure, you could ask someone to resave the document backward, but

it's a lot more convenient to use the Conversion module to open XPress 5 documents in XPress 4.

Of course, it would help to have an alert warning XPress 5 users that they are about to overwrite a version 4 file. That's exactly what the Version Keeper module does. Also, a small version number appears at the top of the title bar to remind XPress 5 users what version they're working with. This module is extremely useful for shops that use a mixture of XPress 4 and 5.

Reduce File Sizes

The last module, Gray Previews, lets you reduce a document's file size by converting all the placed image previews into gray placeholders. The reduction is astonishing—



Easy Access MarkzTools' dialog box for opening files gives you access to nearly all the product's features; therefore, you can check files as you open them.

a 2.6MB file with several images dwindled to 40K. The original purpose of this module was to save backups of documents onto a floppy disk. But in a world of 100GB hard drives, there doesn't seem to be much use for this feature.

Macworld's Buying Advice

Sadly, most people wait until disaster strikes before buying products like MarkzTools. But ask anyone who has lost time trying to re-create a corrupted document how much they would have paid to recover all or part of it, and MarkzTools' \$199 price looks like a bargain.

RATING:

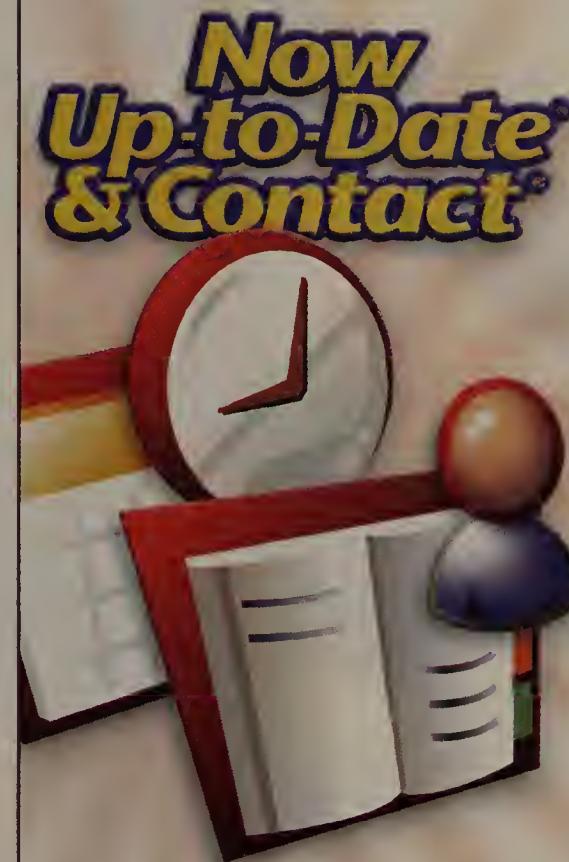
PROS: Good recovery and protection tools for corrupted documents.

CONS: Isn't always able to completely repair damaged documents.

PRICE: \$199; upgrade from previous version, \$99

OS COMPATIBILITY: Mac OS 9

COMPANY: Markzware, 800/300-3532, www.markzware.com



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The New York
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► "Well, what're you waitin' for? Draw!"



EazyDraw Make Drawing Fun on OS X

Introducing EazyDraw – the fun, easy-to-use Mac OS X design tool that lets you draw like a pro! Now you don't need to be a graphic artist to create great illustrations. EazyDraw's vector-based graphics and editing capabilities make it easy to create technical diagrams, flow charts, and business communications as well as commercial line art illustrations and graphic elements for application software and web design.

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REVIEWS

SOUND SOAP 1.0

Noise-Reduction App Helps Eliminate Hiss and Hum

BY CHRISTOPHER BREEN

Although some people may claim that vinyl records bring a warmer quality to music, few contest the notion that dragging a needle repeatedly through a groove introduces unwelcome pops and crackles. Thankfully, many new tools have arrived that can zero in on this annoyance—and others—and largely eliminate it. One such tool is Bias's SoundSoap, a \$99 noise-reduction utility (available as a VST audio plug-in or as a stand-alone product) simple enough for a preschooler to operate.

Clean Up in a Jiffy

It really is that easy to use. To remove hiss and hum from a recording, you need only open a QuickTime-compatible video or audio file (including AVI, WAV, AIFF, MP3, and MPEG-4) and press the Learn Noise button. In a couple of seconds, SoundSoap profiles the noise in the file and removes its most annoying characteristics. SoundSoap allows you to focus on specific kinds of noises as well. Click on the Preserve Voice button, and SoundSoap removes audio clutter outside the range of the human voice. And clicking on the Remove Rumble button eliminates noise below 40Hz. Should you care to see what SoundSoap

is doing, take a gander at the ovoid Wash Window, which offers a view of your sound before and after processing.

We successfully removed much of the background roar from a QuickTime movie shot near an airport runway. We also applied SoundSoap to a digitized 78-rpm recording featuring voice and big-band music. Although SoundSoap removed much of the hiss and crackle, the resulting file sounded a bit flat. We then wished that SoundSoap also let us enhance recordings with tone controls and a stereo-field enhancer, as does Arborium Systems' noise-reduction utility, the less-intuitive Ray Gun Pro X (\$149; 800/700-7390, www.arboretum.com).

Macworld's Buying Advice

There's no question that SoundSoap ably and easily removes noise from just about any audio file you throw at it—and if that's all you have to do, then this is the tool you need. □

RATING:

3 1/2

PROS: Effortless noise removal.

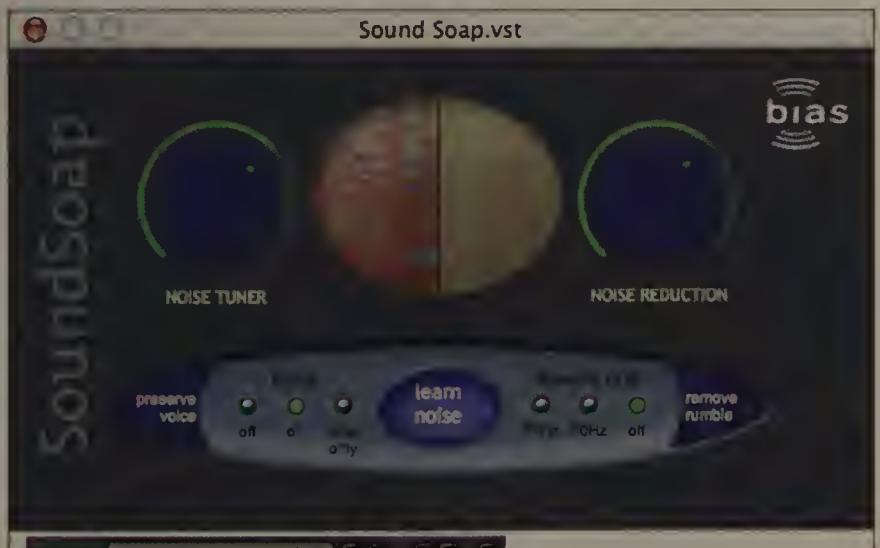
CONS: Lacks audio enhancements.

PRICE: \$99

OS COMPATIBILITY: Mac OS X

COMPANY: Bias, 800/775-2427,

www.bias-inc.com



Soap Dish The left side of the ovoid Wash Window displays preprocessed noise in red. After processing (right), the red is nearly gone.

EPSON STYLUS PHOTO 900

Printer Provides Inexpensive Photo Printing and CD, DVD Labeling

BY BEN LONG

Epson's latest six-color photo printer, the Stylus Photo 900, gives you a lot of bang for your buck, with the same excellent photo-quality printing and semimarchival inks as the rest of the Epson Stylus Photo line, as well as the ability to print on specially prepared CDs and DVDs. At \$199, it's an inexpensive, high-quality tool for people who need to print more than the usual documents.

Which isn't to say that this printer isn't good for printing documents: the Stylus Photo 900 has a maximum resolution of 5,760 by 720 dpi and produces clear images. And if you've seen prints from other recent



Epson photo printers, you know what to expect from the 900: prints with such excellent reproduction and color fidelity that they look as if they had been printed at a photo lab. And when you use certain Epson paper, you get prints with an estimated archival life span (that is, the amount of time during which

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REVIEWS

MASK PRO 3

Photoshop Plug-in Makes Simple Work of Tough Masks

BY BEN LONG

If you've ever tried to use Adobe Photoshop to select or mask a complex subject—a person with frizzy hair, say, or a leafy plant—you know that doing so can be very tricky. Mask Pro 3 is the latest upgrade to Extensis's excellent masking plug-in for Photoshop, and with a number of new selection tools and masking utilities, as well as OS X support, it is essential for the avid Photoshop user.

RATING: 

PROS: Highlighter tools for faster masking; makes excellent composites.

CONS: Hides Photoshop's interface.

PRICE: \$200; upgrade, \$100

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Extensis, 800/796-9798, www.extensis.com

Mask Pro 3 works with Photoshop 6.0.1 or 7.0.1 and with Photoshop Elements 2.0. You get two plug-ins: one removes the background from your image after you create a mask, and the other makes a selection based on your mask. You can use Mask Pro to create a mask on any layer, adjustment layer, or channel.

Extensis has revamped Mask Pro's interface with a new Tool Options palette and a thorough set of options for viewing your mask while you create it. Unfortunately, the interface takes over the entire screen, completely obscuring Photoshop's interface. So if you want to cut a mask while keeping an eye on another document, you're out of luck.

In general, you create a mask in Mask Pro by defining colors to keep and colors to drop. New



Nothing to See Here After selecting the Keep and Drop colors, we used Mask Pro 3's Magic Brush to remove the background behind the tree.

to version 3 are Keep and Drop Highlighters, which let you outline areas of color to define your mask. For many objects, this is much faster than clicking with the eyedropper tools. After selecting your colors, you can use Mask Pro's special brushes and pens to remove the background.

Mask Pro is now better at making your selection blend with its background. It preserves the transparency of a mask's edge pixels while eliminating specific col-

ors, allowing for halo-free composites with backgrounds. This feature works much better than version 2's EdgeBlender filter.

Macworld's Buying Advice

Overall, the breadth of version 3's tools makes Mask Pro much more flexible than Photoshop's Extract feature and easier to use than Procreate's KnockOut 2 plug-in (; March 2002). We recommend it to anyone who needs to make quick, accurate masks. □

THE CONQUEST

DiskWarrior is Now OSX Native

It's the indispensable utility that repairs problems such as disks that won't mount, files you can't trash, and folders that have disappeared. MacUser magazine said, "It's the fastest and safest data recovery utility you can buy."

Macworld magazine said, "DiskWarrior is by far the best disk utility available for the Mac; it can repair virtually any disk problem you may

encounter...and it is likely to become the only tool you'll want to keep with you at all times."

David Coursey, ZDNet AnchorDesk, agrees in an article comparing disk utilities. He used it to fix a disk that no other utility could. "DiskWarrior is a great product, not just because it fixed a pretty serious screw-up, but because it showed me what it planned to do in minute detail before doing it."

But disk damage isn't the only threat to your data. As hard drives get older, the drive mechanisms

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SHUTTLEXPRESS

Customizable Device Enhances Your Control Over Video and Audio Applications

BY ANTON LINECKER

When Apple introduced the 12-inch PowerBook G4, it essentially packed a good thing into a smaller container.

Contour Design takes a similar approach with the ShuttleXpress, a miniature version of its successful ShuttlePro media controller (3½; June 2002). Aimed at video-editing enthusiasts, the very customizable ShuttleXpress will also appeal to professionals.

Like its larger cousin, the ShuttleXpress is sturdily and ergonomically built. It offers easy one-hand access to its jog-shuttle knob and five large programmable buttons. Its wide base (4.5 inches in diameter), low



center of gravity (it's about an inch tall), and rubber feet ensure that it stays in place as you use it.

The ShuttleXpress is aesthetically slick, too—it looks like a black UFO. Although coworkers will admire the fancy gadget on your desk, its lack of physical customization options will sometimes leave you guessing—what does the fourth button from the left do, again? Contour Designs provides no way to label the buttons.

The jog-shuttle knob consists of a black, rubberized, spring-loaded outer ring, which is used primarily for fast-forwarding and rewinding, and an inner jog

knob, which rotates 360 degrees to provide fine, frame-by-frame control in video-editing programs. You can use the knob for other purposes in other applications. In iTunes, the inner portion adjusts the speaker-volume control. In Microsoft Word, the inner wheel moves the cursor horizontally and the outer ring moves it vertically.

Using the included software, you can program the ShuttleXpress's five large buttons to do almost anything. In fact, its buttons are almost *too* customizable. Although you would expect to be able to assign functions to the entire knob, the jog-shuttle part of the device is divided into 54 separate configurations, and each is individually assignable. Thankfully, the application contains 26 presets for various programs, such as Apple's Final Cut Pro, iMovie, and DVD Player, and Avid's AvidXpress DV.

For video editors accustomed to working with traditional

videotape machines, the ShuttleXpress, with its familiar jog-shuttle, is definitely comforting. Keyboard-shortcut aficionados may find the unit a mere distraction, since there's nothing you can do with the ShuttleXpress that you can't do with a keyboard shortcut.

Macworld's Buying Advice

Contour Design's ShuttleXpress is a compact, useful controller that follows neatly in the footsteps of the Shuttle-Pro, which will be a fine alternative if the ShuttleXpress's five buttons are not enough for you. □

RATING:

PROS: Solid construction; extremely customizable; stylish.

CONS: Buttons can't be labeled.

PRICE: \$60

OS COMPATIBILITY: Mac OS 9, Mac OS X

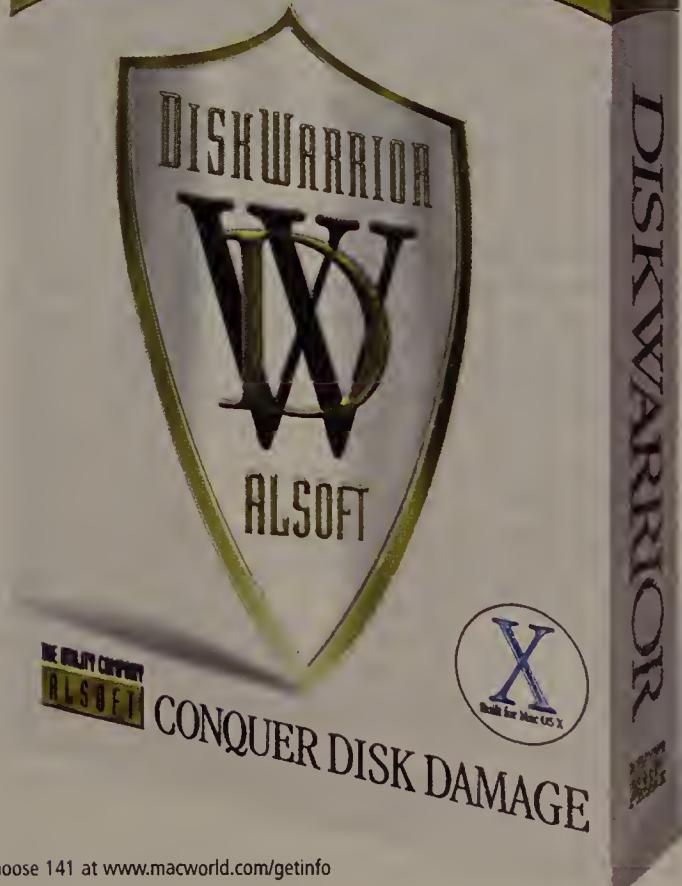
COMPANY: Contour Design, 800/462-6678, www.contourdesign.com

CONTINUES

DISKWARRIOR

begin to malfunction. Eventually, the malfunctions become so severe that the drive simply stops working. DiskWarrior can automatically test for hardware malfunctions, giving you the chance to back up your data before it's too late.

Be prepared. Don't wait until after you have a disk disaster to buy your copy of DiskWarrior. Bob LeVitus, aka Dr. Mac, said, "I feel naked without DiskWarrior." You can believe MacHome magazine when they said, "DiskWarrior is a quick, one-click solution to faster, more stable hard drives."



Choose 141 at www.macworld.com/getinfo

REVIEWS

EAZYDRAW

Drawing Application Straddles Hobby-Pro Line

BY ANDREW SHALAT



Dekorra Optics' EazyDraw is a vector-based drawing application that doesn't know what it wants to be when it grows up. Its name implies that it's an uncomplicated, easy-to-understand tool, but few of its features are obvious or clear in function or performance.

EazyDraw's basic tool set seems pointed at more-complex illustration techniques instead of simple ones. In an unusual twist, EazyDraw applies a few of those complex and sometimes rather sophisticated techniques in an easy, immediate fashion; it's occasionally more intuitive than its high-end rivals. Making a spiral, for instance, can be a bear in other programs, but here the process is intuitive and interactive.

EazyDraw buries a full and complex feature set beneath a decidedly difficult interface. It handles transparency, masking, importing raster images, cropping and framing images, and even applying vector shadows; however, these tasks involve a byzantine series of steps that's hard enough to figure out in the first place, let alone remember on your second try.

Built from the ground up as a Cocoa application, EazyDraw takes advantage of OS X features such as the font manager and the Quartz graphics layer. It runs only in OS X.

EazyDraw's nonstandard interface takes a bit of getting used to. The tool icons are simply drawn, but their corresponding functions are not readily apparent. The Knife tool's icon looks like an arrow rather than an X-acto knife.

On the positive side, EazyDraw has a fluid and fast screen draw, as well as unlimited undos.

Macworld's Buying Advice

EazyDraw defies categorization. It has the illustration-tool features you'd expect from a higher-end application, but its odd interface and limited output capabilities will slow down, rather than speed up, your work. □

RATING:

PROS: Fluid screen draw; sophisticated Bézier tools for seasoned digital illustrators; unlimited undos.

CONS: Odd, difficult interface.

PRICE: \$95; nine-month trial, \$20

OS COMPATIBILITY: Mac OS X

COMPANY: Dekorra Optics, 608/635-7972, www.eazydraw.com

F10 LAUNCH STUDIO 1.2

Chronos, www.chronosnet.com; \$29



F10 Launch Studio is a little utility that tries to make your Mac life easier by putting all your applications, folders, and documents on a single launch pad. The beauty of F10 Launch Studio is that it's invisible until you press the F10 key; it then pops into view, filling the whole screen, and as soon as you open a specific item, it disappears.

Among the program's more useful features are its 16 customizable pages for organizing your files and applications; an option-tab program switcher that lets you switch between open applications; and the new Chameleon Filter, which, like Objective Development's LaunchBar (; "Mac Software Bargains," July 2002), selects an item when you type any of the letters in its name. To help you get your applications onto the launch pad, F10 Launch Studio will find them on your hard drive and place them on an appropriate page, but we found that this feature was only marginally useful, especially when it came to organizing the apps.

Unfortunately, although F10 Launch Studio has many excellent features, it's no match for TLA Systems' similar but far more versatile DragThing (; March 2003).—JEFFERY BATTERSBY

READ, WRITE & TYPE

Talking Fingers, 800/674-9126, www.readwritetype.com; \$80

Read, Write & Type aims to teach six- to nine-year-olds proper keyboarding skills as they learn how to read and write. It's a complete kit that includes an activity guide, two CD-ROMs, stickers, a laminated cardboard "practice keyboard," and 18 miniature books to read—hence the high price for users accustomed to \$20 education games.

The Read, Write & Type game takes kids to a fantasy world: a computer inhabited by Lefty and Rightway, a pair of left and right hands. A green blob named Vexor tries to steal letters from the keyboard, and it's through proper typing that kids can vex Vexor. The laminated practice keyboard and stickers give kids hands-on experience away from the computer, too.

The included Spaceship Challenge assesses how well the kids are learning. OS X users be warned: Spaceship Challenge is only compatible with the classic Mac OS (Read, Write & Type runs natively in OS X).

With support for System 7.5 or later, Read, Write & Type will work on a wide range of systems, but its fixed 640-by-480 resolution looks awkward in OS X.—PETER COHEN

Epson Stylus Photo 900

continued from page 41

your prints will show little fading or discoloration) of 27 years, which is better than some photographic processes.

But the real draw is what the Stylus Photo 900 can do in addition to printing on paper. Allowing you to print directly onto CDs and DVDs, the Stylus Photo 900 eliminates the hassle and expense of printing labels. You can buy printable CDs and DVDs from just about any store that sells recordable media. In general, prices for name-brand printable CDs are pretty much the same as prices for nonprintable CDs.

To print on a CD or DVD, you load the disc into a special carrier, which you feed into the printer's straight-through paper path. You'll need at least a couple of feet behind the printer to load the media tray, so if you plan on doing a lot of disc printing, you won't be able to position this printer against a wall.

Magic Mouse Productions Discus EP for OS X is included with the printer; it provides a rich assortment of CD-labeling tools in an easy-to-use interface. Discus lets you import bitmapped artwork, and it provides text tools that can automatically generate curved text that perfectly fits the radius of a disc. You can, of course, print from any graphics program, but you'll need to build a template to get your image properly positioned on the disc.

Printing a CD or DVD label takes longer than printing on normal paper, and don't expect glossy results. Though its images are a little undersaturated, the 900 still delivers high-resolution, photo-quality prints on either white or metallic-finish discs. We were very impressed with the results, which looked much better than some of the silk-screening techniques used on commercial CDs.

Macworld's Buying Advice

If you regularly need to create high-quality CD or DVD labels, you won't find a better printer for this price. Offering Epson's exceptional six-color technology, excellent bundled software, and easy media handling, the Stylus Photo 900 is a very good value. □

RATING:

PROS: Fast; quiet; excellent print quality and archival durability; low price; can print on CDs and DVDs.

CONS: CD and DVD labels are a little undersaturated; you need a lot of space behind the printer to accommodate its media tray.

PRICE: \$199

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Epson, 800/463-7766, www.epsonstore.com

HOT PRODUCTS

Macworld's TOP 5



1

1GHz PowerBook G4, 17-inch (\$3,299), from Apple Computer (www.apple.com): It pushes the limits of portability, but the 17-inch model has the best combination of features and performance of any PowerBook. It's an excellent workstation for video pros and designers (June 2003).

2

iTunes 4 (free) and third-generation iPods (\$299 to \$499), from Apple Computer (www.apple.com): This combination makes us want to sing. Buy music with iTunes 4 and play it on a new iPod? Sounds good (July 2003).

3

Live 2.0 (\$399), from Ableton (www.ableton.com): DJs and other live musicians will love Live 2.0's ease of use, implementation of OS X music technologies, and cool new time-stretching and Tap Tempo features (July 2003).

4

PowerShot A70 (\$399), from Canon (www.canon.com): Full manual controls, a nice movie mode, and support for conversion lenses and an underwater case make this 3.2-megapixel digital camera a winner (July 2003).

5

PowerShot S400 Digital Elph (\$599), from Canon (www.canon.com): This great 4-megapixel digital camera features a scratch-resistant, all-metal body; quite good photo quality; and no red-eye problems (July 2003).

MINIFINDERS More Hot Products Recently Reviewed

1GHz iMac G4, 17-inch (\$1,799), from Apple Computer (www.apple.com): The speed and power of this new iMac are remarkable, especially given its big LCD monitor and reasonable price. It provides support for AirPort Extreme and Bluetooth, too (May 2003).

1GHz Power Mac G4 (\$1,499), from Apple Computer (www.apple.com): This Power Mac supports new Apple technologies, namely FireWire 800 and AirPort Extreme. It provides good performance at an attractive price, and it's reasonably quiet (May 2003).

Addressix 1.3 (\$13), from A Sharp (www.a-sharp.com): This application can print envelopes in any of 12 U.S. and international sizes, and you can create custom sizes. Addressix is smart, and it does its task very well (July 2003).

Cleaner 6.0.1 (\$599), from Discreet (www.discreet.com): Improvements in performance and codec compatibility, as well as OS X compatibility, make this video-encoding utility essential for anyone who needs flexibility and power (June 2003).

Color LaserJet 2500L (\$1,000), from Hewlett-Packard (www.hp.com): This color laser printer's crisp, clean output and truly reasonable price mean that small workgroups with big printing needs can benefit from color-laser technology without putting too large a dent in their budgets (March 2003).

Deluxe Board Games (\$20), from Freeverse Software (www.freeverse.com): This gaming software answers the call for simple, well-crafted, online-capable board games. A great value, it may also draw new players to online gaming (July 2003).

Director MX (\$1,199), from Macromedia (www.macromedia.com): Director MX is an excellent upgrade for Director users, though it isn't a revolutionary release in terms of new features. It now works with OS X for both authoring and playback (June 2003).

Dual-1.25GHz Power Mac G4 (FW 800) (\$1,999), from Apple Computer (www.apple.com): The dual-1.25GHz Power Mac G4 supports new Apple technologies, namely FireWire 800 and AirPort Extreme. It's an excellent value and performs very well. Also, it's reasonably quiet (May 2003).

Dual-1.42GHz Power Mac G4 (\$2,699), from Apple Computer (www.apple.com): This Power Mac G4 is not astonishingly faster than the dual-1.25GHz—but for \$700 more, you get nice extras that make it a good value (June 2003).

Final Cut Express 1.0 (\$300), from Apple Computer (www.apple.com): At a third of Final Cut Pro's price, this DV-

only video-editing package brings professional features to users looking to move up from iMovie (May 2003).

FontLab 4.5 (\$549), from FontLab (www.fontlab.com): Fontographer (or something like it) is back. Font-designer pros who take the time to tackle FontLab's somewhat confusing maze of toolbars will be rewarded with the power to create full-featured OpenType fonts (July 2003).

FreeHand MX (\$400), from Macromedia (www.macromedia.com): If you're using Dreamweaver, Flash, or Fireworks, then this illustration program is an essential piece of your Web-design puzzle, integrating with the other members of Macromedia's MX family (July 2003).

G-celerator GC1-800-S2 (\$280), from Giga Designs (www.gigadesigns.com): This CPU-upgrade card is a good performer, and its price is very tempting—it's one of the lowest-cost 800MHz upgrades available. It's compatible with Power Mac G4s from AGP graphics through Quicksilver (July 2003).

G-celerator GCS-1000-S2 (\$420), from Giga Designs (www.gigadesigns.com): We recommend this 1GHz CPU-upgrade card (compatible with Power Mac G4s from AGP graphics through Quicksilver) for its competitive price, speedy performance, and trouble-free operation (July 2003).

HL 5070N (\$499), from Brother (www.brother.com/usa/index.html): For people who want an inexpensive laser printer, this monochrome networked laser's excellent text printing and Rendezvous capabilities make it a great choice (June 2003).

Imprint 1.1 (\$20), from Ampersandbox (www.ampersandbox.com): This little utility can print labels and envelopes, and it includes more than 100 label templates. The interface isn't as smooth as Addressix's, but the program is powerful (July 2003).

Kung-Log 1.44 (free), from Adriaan Tijsseling (www.kung-foo.tv): A rich feature set helps Kung-Log manage Weblogs on multiple servers. As a plus, the developer is very responsive (July 2003).

Location X 1.2 (\$10), from Alex Keresztes and Greg Novick (<http://homepage.mac.com/locationmanager>): This utility does most of what the old Location Manager did, and a little more. Location X is not a big deal, but it can make your life easier as you travel (July 2003).

MP3 Rage 5.4 (\$25), from Chaotic Software (www.chaoticsoftware.com): MP3 Rage is the Swiss Army Knife of MP3 utilities. It helps you fix improper ID3 tag data, look up lyrics and album-cover art, find duplicate MP3 files, create a catalog file, and more (April 2003).

NetNewsWire 1.0.1 (\$40), from Ranchero Software (www.ranchero.com): Integrated with an RSS reader, Net-

NewsWire can manage Weblogs on multiple servers. But there's no image assistance, and it's relatively expensive (July 2003).

Page Sender 3.0 (\$30), from Smile Software (www.smilesoftware.com): This easy-to-use, OS X-compatible fax application knocked our socks off by doing everything a fax machine does—except getting jammed (June 2003).

Phaser 4400N (\$1,400), from Xerox (www.xerox.com): Though it's a little on the expensive side, this networked monochrome laser printer produces excellent text and very good graphics (June 2003).

Photoshop Camera Raw (\$99), from Adobe Systems (www.adobe.com): Photoshop Camera Raw offers an elegant way to bring images into Photoshop. However, this plug-in isn't a substitute for an industrial-strength converter (June 2003).

Portfolio 6.1 (\$200), from Extensis (www.extensis.com): Taking advantage of OS X's interface and structure, this version gives you the power to quickly decide whether a file is a digital asset or digital detritus (July 2003).

PowerShot S50 (\$699), from Canon (www.canon.com): Almost identical to the PowerShot S45, the S50 has a full suite of manual controls, an AF illuminator, a good movie mode, and excellent photo quality (July 2003).

RealBasic 5.0 (\$100), from Real Software (www.realsoftware.com): With a rebuilt compiler and debugger, and the incorporation of OS X's interface features, RealBasic remains the most enjoyable way to develop modern and muscular Mac applications (July 2003).

SketchUp 2.2 (\$495), from @Last Software (www.sketchup.com): SketchUp is CAD software for the rest of us—we recommend it to anyone who has a desire to visualize in 3-D, whether you're redecorating your living room or building a whole house (June 2003).

Spell Catcher X (\$40), from Casady & Greene (www.casadyg.com): Spell Catcher X is undeniably good at checking spelling in the background and works systemwide (June 2003).

SPSS 11 (\$1,145), from SPSS (www.spss.com): If you have mountains of social-sciences or business data to analyze, SPSS 11 is uniquely designed to help you. For large-scale statistical problems, it's the best choice available on the Mac (June 2003).

TextWrangler 1.0 (\$49), from Bare Bones Software (www.barebones.com): This is a moderately powerful tool for sorting, processing, and editing text files. If you spend a lot of time looking at config files or database exports, TextWrangler is a good option (July 2003).

To read the complete reviews of these products, visit www.macworld.com/reviews/minifinders.

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- > Dungeon Siege
- > Orbz 2.0
- > rRootage 0.22
- > Power Chips & High Roller
- > Cube It

Get Into the Action

THE MEASURE OF A GAME'S ACTION IS SOMETIMES REFERRED to as its *twitch* factor, the frantic movement of your digits on a controller. Whether you're trying to stay alive or just attempting to beat the clock,

twitch is what gets your heart pounding and mind racing. This month I look at several different takes on the action genre—a modern relative of Dungeons and Dragons, a 3-D romp with a bouncing orb, an homage to top-down-scrolling games of yore, and three variations on classic puzzle games. One thing they have in common is some fast and furious play.

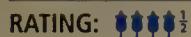
Dungeon Fun

MacSoft's *Dungeon Siege* combines the hack-and-slash action of *Diablo* with the real-time strategy of *Myth* to create what is easily one of the most compelling and dangerously addictive games I've played all year.

Let me emphasize that this is *not* a role-playing game—at least not in any conventional sense. *Dungeon Siege* is first and foremost a combat-action game that includes role-playing elements, such as a fantasy-based story line and the ability to improve character attributes and control inventory. If you're hoping for a *Baldur's Gate* successor, you'll have to look elsewhere, but this game does provide an abundance of dungeon-crawling battles, a beautiful 3-D world, and enough seamless game play to keep you entertained for hours.

When you create basic characters in *Dungeon Siege*, you don't assign them fixed classifications, such as warrior, archer, or mage, right off the bat. Instead, your heroes adopt characteristics over time, depend-

DUNGEON SIEGE

RATING: 

PROS: Tons of action; unique skill-development system for characters; continuous graphics engine keeps you playing rather than watching the time.

CONS: Hacking and slashing get repetitious; no wide-screen support; no cross-platform multiplayer support.

PRICE: \$50

OS COMPATIBILITY: Mac OS X

COMPANY: MacSoft, 763/231-8100, www.macsoftgames.com



Hack and Slash Your team of warriors has plenty of evil foes to fight in MacSoft's action-packed *Dungeon Siege*.

ing on which skills you emphasize when you send them into combat. There are four major skill groups: Melee (hand-to-hand combat), Ranged Combat (firing bows and arrows), Combat Magic, and Nature Magic. Experience builds the characters' skills.

In a single-player game, you can amass a party of as many as eight characters; each will emphasize different skills, depending partly on how much you can afford to

pay and equip your crew, and partly on the characters' predilections. Real-time strategy comes into play as you move further into the story and crank up the game's difficulty. You'll need to figure out how your party will approach new foes and what each member will do. You can group them, issue formation commands, and even provide each member of your party with unique offensive and defensive strategies. For example, my two warriors with tremendous strength and powerful enchanted armor would usually rush headlong into battle, striking down anything that moved, while my archer and combat mage—powerful in their own right but more susceptible to injury in hand-to-hand combat—would hang back to fire at enemies from a distance and protect the pack mule. (His name is Midnight, by the way.)

Dungeon Siege also supports multiplayer gaming—as long as everyone is on a Mac, that is. The PC version relies on DirectPlay, a Windows-only technology. MacSoft, on the other hand, includes support for GameRanger, the free Mac-only online game-matching service.

One of *Dungeon Siege*'s most impressive features is its graphics engine, which loads levels continuously during game play, so you won't have to wait for new screens every few minutes. In fact, aside from a few interstitial sequences containing prerendered movie scenes, you can play the entire game from start to finish.

In *Dungeon Siege*, characters gain skills through experience.

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Boing Boing Bash your orb into stars and power-ups to earn big points in Orbz 2.0, an abstract 3-D-action game.

ish without ever seeing a load-level meter. It's remarkable technology, and it helps to maintain a sense of continuity. I've played for five or six hours at a stretch without any concept of how much time had passed. The endless parade of bad things to kill can get a bit tiresome after a while, but it's also very challenging and very fun.

Dungeon Siege offers reasonably stable performance and lets you save games at any point, in case you have to end a session abruptly. It's also extensively configurable. One currently missing feature is native support for the wide-screen format, which is becoming increasingly popular in Apple's product line. And that's a shame; the game's 1,024-by-768 limitation leaves nasty black margins on either side of a Cinema Display.

The Bottom Line Dungeon Siege is an almost perfect, action-packed dungeon crawl that will appeal to fans of Diablo and to real-time strategy gamers.

Great Balls of Fire

Following up on its recent Marble Blast offering (***; *The Game Room*, June 2003), GarageGames has released Orbz 2.0 for the Mac, another 3-D-action title that places Mac users in the wake of a speeding ball. You may wonder whether a theme is developing. But don't worry about the similarities—these games cover very different territory.

In Orbz, you use your mouse to aim and shoot an orb through one of more than a dozen 3-D environments. These colorful and fanciful settings range from a bubbling spring to a construction site and a haunted graveyard. You pick up points along the way by bashing your orb into stars. Collect them all before time runs out, and you'll earn bonuses—but that's easier said than done.

Although Orbz is incredibly simple to learn—just aim and shoot—the game takes some skill to master. The Orbz world is subject to the laws of physics, so your orb arcs, bounces, and rolls just as you'd expect it to in the real world. This means that you sometimes have to aim above your target, depending on its distance and the kind of surface you're firing from. You can occasionally find power-ups that help you along the

way by increasing the strength of your shot, raising the value of stars, defending you against other players, and more.

Version 2.0 is Orbz's debut on the Mac, and it was definitely worth the wait. The game has incorporated numerous changes since its initial release, including the addition of a single-player mode. In that solo mode, you work through 35 progressively more challenging levels. High scores will earn you bronze, silver, or gold medals and unlock new orbs to play. The game can even register your high scores on a ladder-ranking service if you wish.

In multiplayer mode, you can take on as many as nine opponents, either on a LAN or on the Internet. You can decide whether to face off against computer-controlled Botz, which vary in skill level, or other human players. You can host your own game, join someone else's, or play on the developer's common-access servers. The simple and colorful graphics are reminiscent of console games, and they're very effective within the context of Orbz. Sound effects are likewise sparse but effective—you'll hear a basketball-like thunk when your orb bounces against walls or other obstructions. And the whistle of a flying orb intensifies and fades just as you'd expect.

Like Marble Blast, Orbz 2.0 is available only for online purchase and download, so don't go to your favorite store looking for an Orbz box.

ORBZ 2.0

RATING: ***

PROS: Simple mechanics take only moments to learn; multiplayer mode keeps up the challenge.

CONS: Sparse sound effects and no music.

PRICE: \$20

OS COMPATIBILITY: Mac OS X

COMPANY: GarageGames, 541/345-3040,
www.garagegames.com

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The Bottom Line Orbz's simple mechanics, nonviolent play, and cartoonish graphics make it a sure hit for families who want something everyone can play and find challenging.

Who's the Boss?

You won't find a lot of new top-down-scrolling arcade games these days—and that's a shame. Done right, scrollers can provide some furious action as you face off against a seemingly endless onslaught of foes emerging from the top of your screen. One of the things that makes these games so appealing is the *boss level*, where you take on a single massive foe—a huge space battleship or a giant monster with writhing tentacles, for example. Armed to the teeth with a dazzling array of firepower, this mammoth nemesis hammers you with an almost incalculable cloud of projectiles. (This is generally when you start pumping in quarters like mad.)

Game developer Kenta Cho distilled the essence of the boss level into an abstract, hypnotic, and downright addictive game called rRootage. And thanks to the efforts of Adam Green, it's now available as a free download for OS X.

rRootage features a unique but easily navigable interface and a vector-style graphics engine that, combined with a pulsing techno soundtrack, reminds me of another retro Mac game I adore, Battle-Girl. To play rRootage, you choose one of four game modes—each imbues your craft with special powers, such as bombs that nullify incoming bullets, and shields that deflect enemy fire—and then select a difficulty level. The constantly scrolling grid underneath your vessel gives you a clear sense of rushing over a vast terrain as you blast your enemy to smithereens. A convenient meter helps you track just how close your enemy is to final annihilation, while other status counters display your score, level, and number of remaining lives, as well as any applicable attributes of your ship. Flashing particle disintegration and showy lighting effects remind you that this is an OpenGL-based game.

rRootage is a heck of a twist on the venerable but sadly neglected genre of top-down scrollers. Aside from a few holdouts (such as Ambrosia Software's Deimos Rising and GameCube's Ikaruga), few new



Raiden Redux In rRootage, a game that is the bare essence of top-down scrollers, you bombard the enemy from your trusty vessel, shown as a dot in a protective halo of outlined polygons.

scrollers have made their way to the market in recent years, so rRootage is a welcome breath of fresh air.

Although rRootage is still a work in progress—the game is currently at version 0.22—it feels fairly complete. It offers support for joysticks and multiple resolutions, and it can play in full-screen or windowed mode. Noticeably lacking, however, is any Mac-specific documentation or technical support. Still, this is a solid conversion and lots of fun to play.

The Bottom Line rRootage won't appeal to everyone. But if you're a true fan of the genre, this is an instant classic that deserves a special place in your collection.

rROOTAGE 0.22

RATING:

PROS: Fast-paced action; pulse-pounding sound effects and soundtrack.

CONS: Spare, minimalist design may put some players off; no Mac documentation or technical support to speak of.

PRICE: free

OS COMPATIBILITY: Mac OS X

COMPANY: Adam Green, www.victoly.com/~adam/

Where's Elvis?

You won't find any truly original concepts in Power Chips & High Roller, a new pair of action puzzle games by Mumbo Jumbo (sold through MacPlay), but the titles do offer top-notch production value, excellent soundtracks, and some high-paced action.

Power Chips adds some Vegas flash to the classic action puzzle Collapse. You start with a green felt table and a horizontal row of betting chips in various denominations. As new rows fall from the top of the screen, your job is to cash out groups of three or more chips with the same denomination quickly enough to keep the

continues

The box art for the video game "Tony Hawk's Pro Skater 4". At the top, the title "TONY HAWK'S PROSKATER 4" is displayed in a stylized font. Below the title is a photograph of Tony Hawk performing a skateboard trick. The background of the box is orange. There are several text overlays: "explore enormous levels" on the left, "interact with the environment like never before" in the center, and "new challenging goals and objectives" on the right. At the bottom, there is a portrait of Tony Hawk standing and holding a skateboard. Logos for Mac, ASPYR (with the website www.aspyr.com), Activision (with the website activision02.com), and NIVERSOFF are visible. A rating box indicates "TEEN" with "Blood", "Comic Mischief", "Mild Lyrics", and "Suggestive Themes". A small note at the bottom right states: "© 1999-2002 Activision, Inc. and its affiliates. Published and distributed by Activision Publishing, Inc. Activision and Pro Skater are registered trademarks and Activision 02 and Sports Revolution are trademarks of Activision, Inc. and its affiliates. All rights reserved. Tony Hawk is a trademark of Tony Hawk. Developed by Neversoft Entertainment, Inc. All rights reserved. The ratings icon is a registered trademark of the Interactive Digital Software Association. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks and trade names are the property of their respective owners."

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POWER CHIPS & HIGH ROLLER**RATING:** **PROS:** Great production quality; lovely graphics; nice music and sound effects.**CONS:** Entirely unoriginal; High Roller's Time Attack mode is too hard.**PRICE:** \$20**OS COMPATIBILITY:** Mac OS X**COMPANY:** MacPlay, 214/855-5955, www.macplay.com

ever-growing pile from filling your screen and ending the game. Bonus chips can dissolve rows, columns, neighboring blocks, and more. For an extra challenge, you can switch to Time Attack mode, which pits you against the clock.

The idea may not be new, but the game is fun and addictive. Its jazzy soundtrack is one of the coolest I've heard this year. Unfortunately, I couldn't find a way to make the chips fall faster without starting a new game at a higher level.

The second game, High Roller, adapts the Bejeweled concept to a 1950s-era muscle-car motif. In this case, your playing field—set into the car's dashboard—remains full as you match groups of three or more similarly colored translucent dice to earn points. Bonus dice abound. High Roller also has a Time Attack mode, but unlike the one in Power Chips, it's ridiculously difficult unless you have lightning-fast reflexes.

What separates Power Chips and High Roller from the plethora of puzzle games on the market today is high production quality. Both have great (if repetitive) soundtracks and enough dazzling, flashing lights, and sound effects to keep you interested. High Roller's translucent, gleaming dice look good enough to lick, and the sound of those Power Chips cashing out is oh so satisfying.

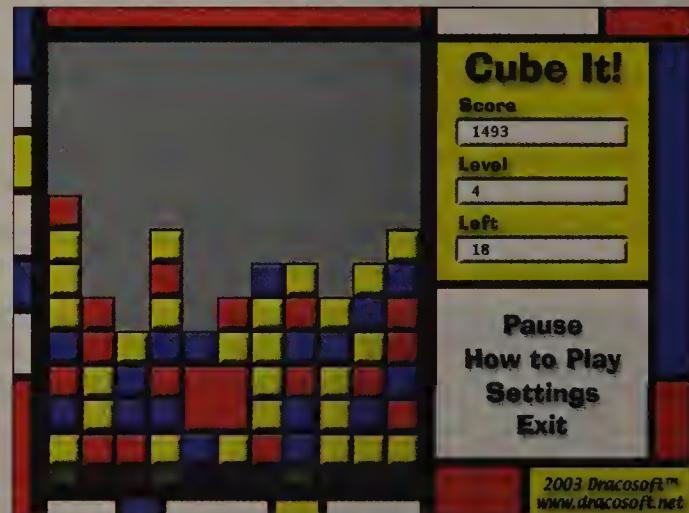
The Bottom Line If your game collection already includes Bejeweled and Super Collapse, you have no need for Power Chips & High Roller. However, if you're intrigued by action puzzles but have avoided buying one because the available puzzles just didn't offer enough eye candy to hold your interest, this disc might be worth a look.

A Work of Art

Shareware developer Dracosoft's latest creation, Cube It, offers yet another take on the classic Collapse. This time, the action takes place within primary-colored squares reminiscent of Piet Mondrian's abstract

modern art (or of the Partridge Family's school bus, if art history isn't your thing).

Like most Collapse remakes, Cube It features a slowly scrolling series of blocks—in this case red, blue, and yellow squares—that build up at the bottom of your screen. You must click on three or more blocks of the same color to make them disappear before the pile reaches the top of the screen. You can also click on bonus blocks to make all blocks of a single color disappear, or to freeze the clock for a few moments and catch up.



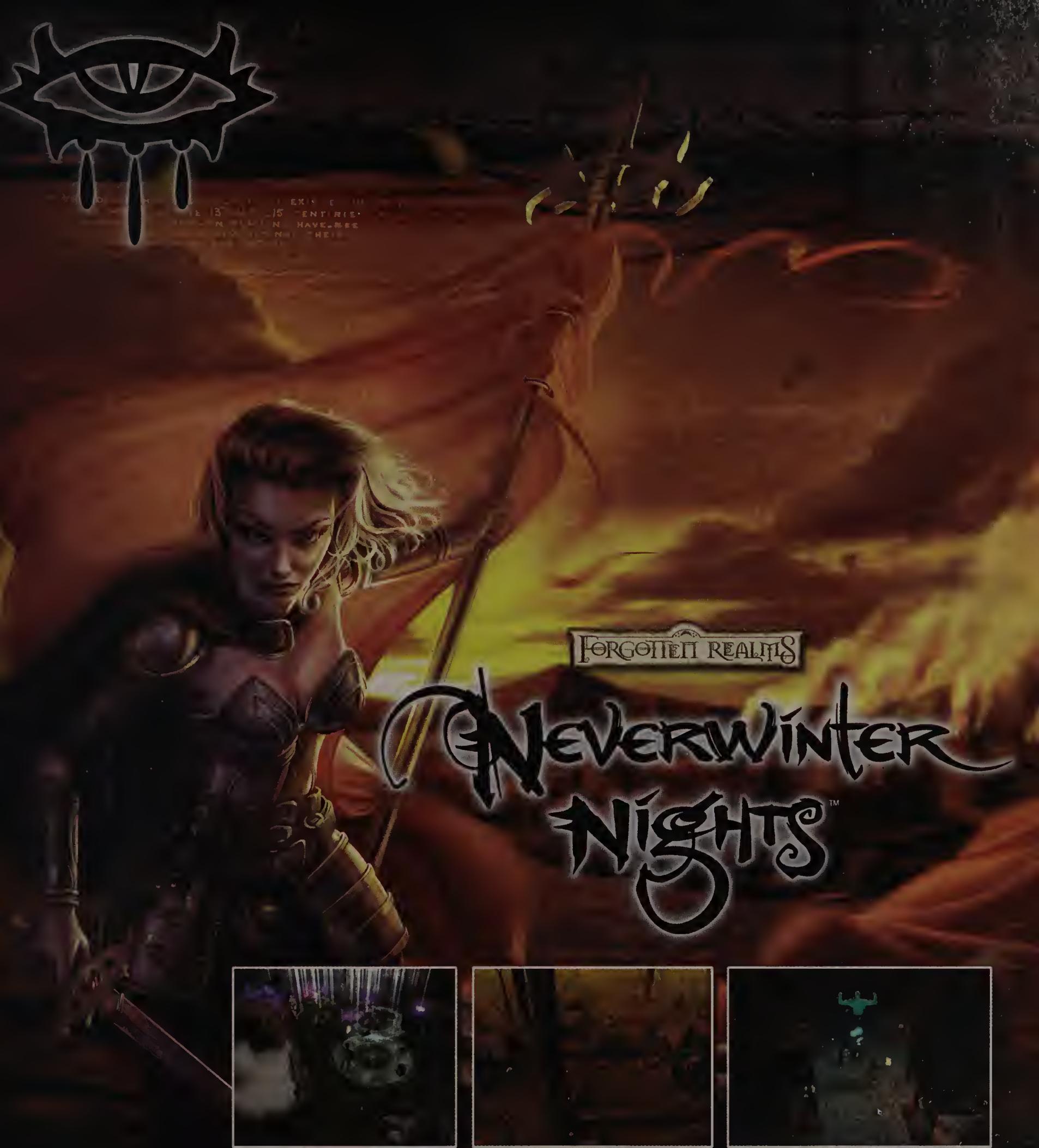
Modern Art Cube It evokes Piet Mondrian's artwork and Collapse-style action.

While Cube It's style is great, its sound effects are spartan, and music is nonexistent. On the upside, however, it's a scant 600K download, suitable for even the most bandwidth-limited dial-up user. Performance needs some optimization—the game occasionally slowed down on my 500MHz PowerBook G4 system running OS X 10.2.4. For users who want to try it out before spending \$10, Dracosoft offers a 60-minute demo version.

The Bottom Line It's not the most impressive Collapse clone out there, and it could use some performance tuning. Still, Cube It is a competent little puzzler. Plus, it's cheap and tiny. □

CUBE IT**RATING:** **PROS:** Modern-art style; small file size.**CONS:** Unoriginal, spartan sound effects; poky performance.**PRICE:** \$10**OS COMPATIBILITY:** Mac OS 9, Mac OS X**COMPANY:** Dracosoft, www.dracosoft.net

MacCentral.com Senior Editor PETER COHEN is always ready for some action—as long as it doesn't require leaving his computer.



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The Do-It-Yourself Mac

From Upgrading a Hard Drive to Building
a Mac Clone, These Projects Will
Help You Make the Most of Your Hardware

EVER WISH YOU COULD BURN A DVD with your first-generation Power Mac G4? Pondered building your own Mac? How about upgrading the hard drive in your flat-panel iMac? Or networking your USB printer? Even extending the reach of your AirPort network?

You may never have considered these types of add-ons and extensions—or if you have, you didn't know how to accomplish them. But you can do these things, and you don't need to be a tech whiz.

We've put together the ultimate hardware guide, chock-full of do-it-yourself upgrades, as well as tips on making better use of your media and digital cameras and camcorders. We hope you'll be convinced that taking control of your hardware is well within your reach.

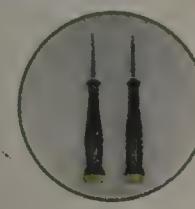
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DIFFICULTY LEVELS



Easy



Medium



Hard



INSTALL A SUPERDRIVE

What You'll Need:

- #2 Phillips screwdriver
- Grounding strap (optional)
- Pliers (optional)

Thanks to DVD-burning optical drives and Apple's iDVD, today's Macs can put everything from your best friend's wedding to large corporate training videos on DVD. iDVD's strongest point is that it simplifies the rather complicated process of DVD authoring, and it's surprisingly powerful. The biggest complaint about the application, however, is that it doesn't work with external FireWire DVD-RW drives. This seems to leave only a few options for Mac users who don't have built-in SuperDrives—purchasing Apple's \$499 DVD Studio Pro, buying a FireWire burner that comes with its own DVD-authoring software (such as those from Formac and LaCie), or buying a new Mac.

Fortunately, there is another option. Apple says you need a Mac with a SuperDrive to run iDVD, but what iDVD really requires is a DVD burner on an internal ATA bus. Install a DVD-RW drive in an older Power Mac G4, and iDVD will find what it's looking for. You can pick up a 4x Pioneer DVD burner (the DVR-A05, the same model Apple uses) for less than \$250 online, so now's a great time to turn your first-generation G4 into a DVD-burning computer.

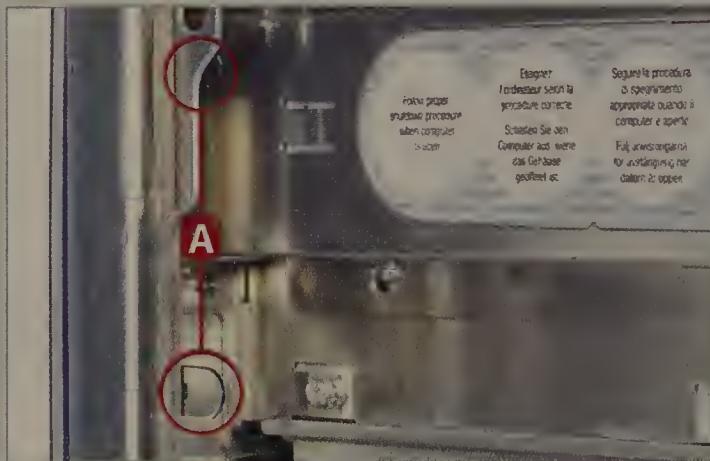
Step 1: Cut through the Static

Before adding components to or removing them from your Mac, you need to discharge static electricity that may have built up. To do so, shut down your Mac—but don't unplug it yet. Leaving the Mac plugged into a grounded outlet ensures that any static you discharge has somewhere safe to go. Now touch some metal on the computer (the access covers for PCI slots are good, or open the case and touch the optical-drive-bay chassis). Unplug your Mac. Try to avoid carpeted surfaces

while you work on your Mac's guts, or buy a grounding strap, for \$5 to \$10, from an electronics store.

Step 2: Dive In

To remove the drive bezel from your Mac, open the access door and find the two tabs at the front of the computer, next to the optical-drive enclosure **A**. Press them both in and push out toward the front of the case until one side of the front bezel pops out. Grab the bezel from the front, and pull it completely off.



Step 3: Remove Screws

Locate the two screws directly underneath your current optical drive **B**. Remove them with your #2 Phillips screwdriver and set them in a safe place.



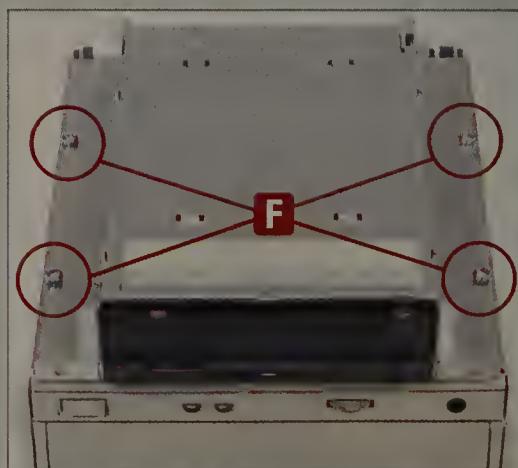
Step 4: Unplug It All

Unplug the ATA ribbon **C** and power connectors **D** from your optical drive **E**. If you have a Zip drive, remove its cables as well. You may need pliers to help you pull them out. Be sure not to pull the ribbons or wires themselves, and be gentle with the pliers. You may find it easier to get your fingers in there if you slide the drive housing forward a bit.



Step 5: Out with the Old, In with the New

Remove the drive housing by sliding it all the way out through the front of the Mac. Turn the housing over and locate the four screws that attach the optical drive to the housing **F**. Remove the screws, pull out the old optical drive, and then slide the new drive **G** in. When the housing's holes and the drive's holes line up, the drive is in the proper place. Now securely replace the four screws.



Better Burning

Now that you've got a shiny new SuperDrive in your G4, you can benefit from these media-burning tips.

- > To get the fastest possible burning from your drive, use media with the same rating as your drive. Some 2x DVD media burn at 1x on a 4x burner; likewise, some 4x media burn at 1x on a 2x burner.
- > To make the discs you burn compatible with as many drives as possible, burn media at 1x.
- > Older DVD drives are more finicky than recent models. If you don't know the age of the DVD player you're targeting, use Apple or other name-brand media, which are more likely to be recognized and played.
- > Before you buy a 50-pack spindle of unknown media, buy and burn a few sample discs to make sure the quality is good.
- > Read media packaging closely—one symbol can make all the difference. For example, DVD-R drives don't burn to DVD+R media.
- > Mac OS X doesn't support DVD-RW. If you want to create DVD-RWs in OS X, you'll need an application such as Roxio's Toast or Charismac's Discrite.

Step 6: Attach the Connectors

Slide the drive housing about halfway through the front of your G4, making sure the ribbon underneath stays flat **G**. Reach into your Mac and attach the power and ATA connectors to the back of your new drive (and to the Zip drive, if you have one). Once those are secure, slide the drive all the way in.



Step 7: Finish Up

Lastly, replace the two front screws you removed earlier, and then snap the front bezel back into place. Install iDVD on your G4. If you don't already have it, you'll need to get Apple's \$49 iLife suite, which contains iDVD 3—the only iLife app you can't download. Your Mac is now ready to use iDVD, as well as burn and play DVDs.—JONATHAN SEFF



PUT USB PRINTERS ON A NETWORK

You can use OS X's Printer Sharing feature (System Preferences: Sharing) to give networked Macs access to a USB printer, but this requires that the Mac hosting the printer be running whenever someone needs to print. A better option is to turn your printer into an independent network device. All you need is an inexpensive print server and an available port on your Ethernet hub or router.

Start with Hawking Technology's H-PS1U, a \$60 print server that includes a USB port and an Ethernet port (949/580-0878, www.hawkingtech.com). Plug the printer into the print server's USB port, and plug the print server into a free port on your Ethernet hub or router.

You'll need to assign the printer a unique IP address so other Macs can access it over the network. You can use your Mac's local address as a guide here: open System Preferences, and click on Network. Note the listed IP address. For your printer, you'll use a similar number with a unique final digit. Write down a couple of options for the new IP address—such as 192.168.0.50—along with the subnet-mask and router addresses listed, and then close the Network pane.

Open Terminal and type `sudo arp -s ipaddress aa:bb:cc:dd:ee:ff`—replacing `ipaddress` with the number you want to assign to the USB printer and `aa:bb:cc:dd:ee:ff` with the MAC (Media Access Control) address for the H-PS1U. (You can find this address on the bar-code tag on the back of the print server.) If this IP address is already taken by another device on your network, Terminal will display an error message. If this happens, try different addresses until you find one that works.

To configure the print server, open a Web browser and enter the printer's new IP address in the URL field. When the Web interface appears, click first on Setup and then on TCP/IP. In the Gateway field, enter the subnet-mask and router addresses from your Mac.

If your USB printer doesn't support PostScript—and most don't—you'll need to download the free Ghostscript (a PostScript interpreter) and Gimp-Print (a collection of printer drivers) from <http://gimp-print.sourceforge.net>. Install both programs on each Mac that will use your newly networked printer. Gimp-Print's documentation describes how to add the printer to the Mac's Print Center.—SHELLY BRISBIN

Easy

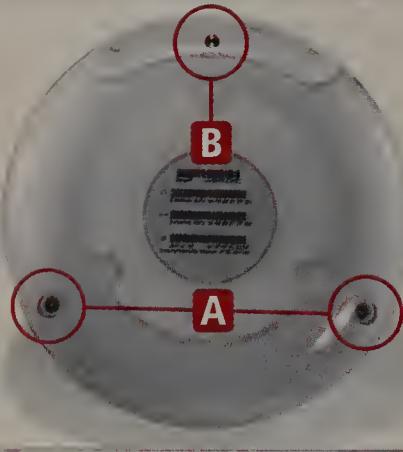
EXTEND YOUR AIRPORT'S RANGE

What You'll Need:

- #8 Torx screwdriver
- Needle-nose pliers (optional)

Thanks to Apple's AirPort technology, wireless networking has become affordable and easy to use. And under ideal conditions, Apple's AirPort Base Station can provide coverage at distances as great as 150 feet in every direction. But walls and other objects can severely decrease that range, and sometimes 150 feet just isn't far enough—even for a home or small office. You can extend the range of your Base Station by hundreds of feet (or even several miles) by adding an external antenna. Using Base Stations and antennas in each location, you can cover a larger area of your office or home, extend wireless access to a neighboring building, or even put multiple remote facilities on one network.

Although the \$249 AirPort Extreme Base Station is Apple's first AirPort model to include a port for an external antenna, several companies offer antennas that you can add to second-generation (snow) Base Stations (for more information, see "Antenna Basics"). You'll have to do a little tinkering, and you'll void what may be left of your warranty.

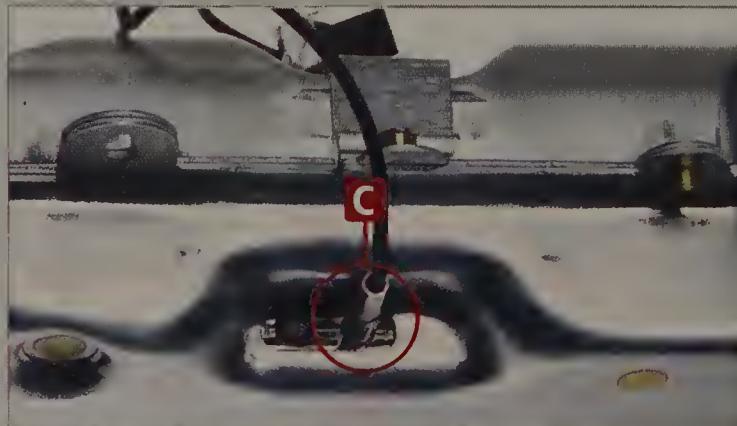


Step 1: Open the Base Station

Unplug all cords from the Base Station and turn it upside down so that the screws are visible. Use the #8 Torx screwdriver to remove the two screws that hold the plastic shell together **A** and the screw that holds the port cover in place **B**. Turn the Base Station over, remove the top half of the shell, and lift the silver enclosure from the shell.

Step 2: Disconnect the Internal Antenna

The internal antenna is attached to the Base Station's AirPort radio via a connector on the right side of the Base Station enclosure **C**. Remove the connector—if you have trouble removing it, carefully use needle-nose pliers.



Antenna Basics

You can't just use any old antenna to extend your AirPort Base Station. For one thing, the FCC regulates the gain (or strength, measured in dBi) and frequency of wireless-networking antennas and any devices transmitting on the unlicensed 2.4GHz spectrum. The best way to ensure that your antenna complies with federal law is to buy it from a reputable dealer whose products operate in the 2.4GHz spectrum and are designed for use with wireless networks. You can choose between directional and omnidirectional antennas, depending on your needs.

In addition, your antenna must have or support an MC-Card connector—the type that's compatible with the Base Station. It's best to choose an antenna with an MC-Card connector soldered onto its cable. Although you can use various types of adapters with a 2.4GHz antenna that has a different connector type, all excess cabling and adapters decrease the strength of your antenna.

You can buy Base Station-compatible antennas, kits, and connectors from HyperLink Technologies (www.hyperlinktech.com) or from vendors including Proxim (www.proxim.com), whose Orinoco Range Extender Antenna is available online for around \$65, and Buffalo Technology (www.buffalotech.com), whose AirStation Indoor Omnidirectional Antenna is available online for around \$55.



Step 3: Attach the External Antenna Connector

To close the Base Station, you'll need to either drill a hole (large enough for the antenna's cable) in the port cover, or choose not to replace the port cover—we recommend the latter, a much simpler solution.

Thread the end of your external antenna's cable through the port opening at the rear of the Base Station's plastic top. Now plug the connector firmly into the hole where the original connector was (note that you may have to bend the cable a bit before putting the Base Station back together). When you return the Base Station enclosure to the bottom half of the plastic shell, the new antenna cable should lead from the Base Station connector through the port opening at the back.

Step 4: Reassemble the Base Station

If you've decided to leave the port cover off, you can now reassemble the Base Station by placing the domed half of the plastic shell on top, turning the Base Station upside down, and using the #8 Torx screwdriver to replace the two screws that hold the shell together.—SHELLY BRISBIN

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Medium

BUILD A MAC CLONE

If you want a new desktop Mac but already have a nice monitor, you'll have to spend \$1,499 or more on a new G4 tower. But you can save a lot of cash by *building* a Mac instead—it's not as difficult as it sounds. And since you'll be deciding what goes in, you can put your money where you think it'll make the most difference.

You'll need a starter box to serve as the foundation for your upgrade. Almost any PCI-based Apple machine should fit the bill. But if you don't have an acceptable machine, I recommend buying an old Macintosh clone on eBay (www.ebay.com). The Umax J700 or S900 and the Power Computing PowerTower Pro are particularly good candidates for upgrading. You should be able to pick one up for well under \$100. For a handy guide to older Macs and Mac clones—including upgrade options—visit the Low End Mac Web site (www.lowendmac.com).

Once you have your machine, it's time to open it up and start upgrading. Here's what you'll need to replace:

The CPU To bring your new baby up to present-day speeds, replace its old PowerPC processor with a more powerful G3 or G4 processor-upgrade card. You can find an extensive inventory at Sonnet Technologies (949/472-2772, www.sonnettech.com). Prices range from \$150, for a 500MHz G3 card, to \$400, for an 800MHz G4 card. (I recommend the \$300 700MHz G4 card as the best value.)

PCI Cards Your machine's ADB and SCSI ports won't be much use when it's time to hook up modern peripherals. To add USB, FireWire, and ATA ports to your machine, you'll need to install new PCI cards. You can buy inexpensive cards with just the ports you need. However, the simplest and most flexible option is Sonnet Technologies' all-in-one Tempo Trio (\$180), which adds FireWire, USB, and housings for connecting multiple internal ATA drives. This card is

no less expensive than buying the cards separately, but it will make building your box considerably easier.

The Hard Drive Many older machines' SCSI hard drives have capacities between 2GB and 4GB—a mere drop in the bucket of what's available now. You can upgrade to a larger SCSI drive, but ATA drives are much less expensive: I found a 120GB drive for about \$100.

Memory One thing you can never have too much of is memory. OS X is notorious for hogging RAM, so you'll want to buy as much RAM as you can afford. To find the maximum RAM limits for your system, check its technical specifications on the Low End Mac Web site. Some can handle as much as 1GB of memory. When you buy RAM, find a dealer that stands behind its product. Older machines are picky about the RAM they'll accept (some want 168-pin 5V DIMMs), and OS X 10.2 is even pickier. Some companies, such as Other World Computing (800/275-4576, www.ocw.com), sell RAM specifically guaranteed to work with upgraded clones. (You can get a 512MB DIMM from Other World Computing for \$104.)

The OS If you want to install Jaguar on your refurbished machine, you'll first need to download a copy of the freeware XPostFacto. This open-source application (available from <http://eshop.macsales.com/OSXCenter/XPostFacto>) makes some legacy Macs and clones compatible with the new OS. Of course, you can always skip this step and use your new Mac to run your remaining OS 9-only applications instead.

The Result With all of these changes, our refurbished machine cost us around \$734—just under half of what we would have spent on a new Mac. Of course, if you don't need a 120GB drive or 512MB of RAM, you can save even more money. Or you may choose to spend your cash on a better video card or CD-RW drive. That's the beauty of building your own clone: the choices are yours.—DORI SMITH

Easy

GET BETTER VIDEO-EDITING FEEDBACK

It takes a lot of storage and processing power to handle full-motion, full-frame video. Your DV camera takes care of that problem by compressing video so that your computer doesn't choke on too much data. But you pay a price for this compression: when you play back your video on screen, the best your Mac can manage is a low-resolution image with weird color. For a more accurate view of what your video will look like when played back on a TV, you need to add a TV monitor to your editing setup. Fortunately, FireWire-based DV cameras make this procedure a snap.

Bear in mind that not all TVs look the same, and the color on your particular TV may not match the color on TVs where your video will be shown, but the TV

image will certainly be more accurate than the image on your computer's monitor. (Obviously, if your video is intended for computer playback, a TV-monitor preview is not so important.)

To incorporate a TV into your editing setup, use a FireWire cable to attach your camera to your Mac. Set a TV next to the computer and attach the TV to your camera via the camera's component or S-Video jack.

When you play video in your editing program, your Mac sends that compressed digital-video stream out the FireWire port to your camera. The camera decompresses the DV stream into full-frame, full-motion, full-color video, and sends it to the TV. Now the movies you watch on television can be your own.—BEN LONG

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Medium

CONFIGURE A WIRELESS BRIDGE

Networking devices are often (more often than any other computer-related product) made for Windows PCs and boxed with Windows installation software that doesn't even acknowledge the Mac's existence. But many companies' growing tendency to design networking products that use standard Web interfaces, instead of special software, is good news for Mac users. After all, we can use Web interfaces, too.

Take Linksys's \$129 WET11 Wireless Ethernet Bridge (www.linksys.com). With it, you can attach any Ethernet-capable device to your AirPort network.

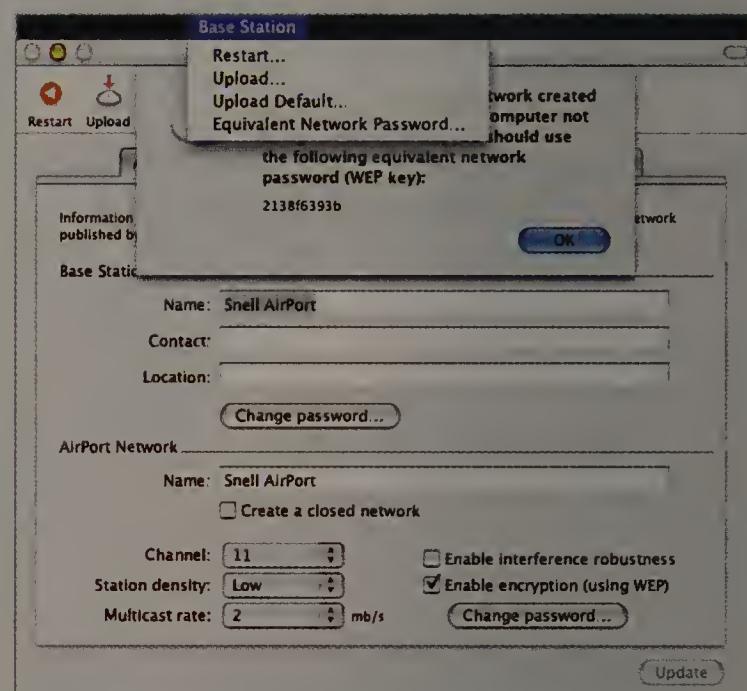
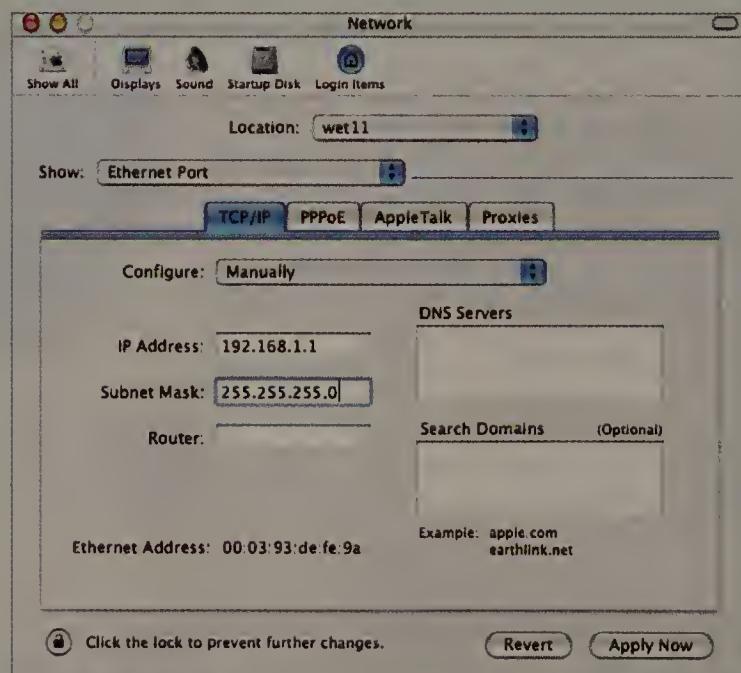
The WET11's documentation doesn't mention the Mac, but with a little networking savvy, you can make good use of the device. Here's a guide to configuring this wireless bridge—and keep in mind that since these steps are generally about configuring your Mac's networking preferences, they're largely applicable to other Web-enabled devices, particularly wireless networking products such as bridges and routers.

Before You Start

The first step in connecting to the WET11 or any other wireless networking device doesn't involve the device at all. Instead, it involves your wireless base station—whether it's an AirPort Base Station or some other wireless router.

For the WET11 to work, it has to connect to your base station. That means it needs to know your base station's name and, more important, password (if your router is password protected). If you're using a non-Apple router, you've probably got a password that looks something like 2156g6886d—a bunch of gobbledegook in hexadecimal format. If you've got an AirPort Base Station, you have a normal password, but it's compatible only with other Apple devices. For the WET11 to work, you need to get what's called an *equivalent network password*—one that also looks like a bunch of gobbledegook.

Net Set To connect to a device such as the WET11, your Mac needs to be on the same subnet.



Turn the Key When non-AirPort hardware is involved, you need to use complicated, hexadecimal equivalent passwords.

To find that password, open the AirPort Admin Utility application, located in the Applications: Utilities folder. Connect to your Base Station and choose Base Station: Equivalent Network Password (see "Turn the Key"). Write down the resulting WEP key information, and save it for later.

Make the Connection

The problem with connecting to many Web-enabled devices is that their out-of-the-box network configurations won't mesh with yours. Even if you plug the device into your network, you can't access it because it thinks it's on an entirely different network. You've got to modify your network settings to match the ones built into the device.

Connect your Mac directly to the WET11 via its included Ethernet cable, and then open System Preferences and click on the Network pane. So as not to mess up your existing network settings, click on the pop-up list next to Location, choose New Location, and name it wet11. Then make sure that the Show menu is set to Ethernet Port and that the TCP/IP tab is showing.

The WET11 is set up with a default IP address of 192.168.1.225. To connect to it, you need to set your Mac to be on the same subnet as that device. You do this by temporarily setting your Mac's IP address to one that starts with 192.168.1, the same first three numbers as the device's IP address. Set the Configure pop-up menu to Manually, and then enter a new IP Address—for example, 192.168.1.1. Set the Subnet Mask to 255.255.255.0. Click on Apply Now, and close System Preferences (see "Net Set").

(Each device is different—if you're not configuring a WET11, check the documentation to see what default IP address your device has. For example, Linksys's

\$179 WET54G—an AirPort Extreme-compatible equivalent of the WET11—has a default address of 192.168.1.226.)

Now open your favorite Web browser and connect to <http://192.168.1.225/>. You should be prompted for a user name and password—for the WET11, the user name is blank and the password is *admin* by default. Once you enter this information, you should see the Setup Web page for the WET11 in your browser.

At this point, if you're familiar with setting up the TCP/IP configuration of other devices on your network, you should be able to figure out how to configure the WET11. But if subnet masks and SSIDs leave you baffled, read on.

Configure This

The WET11's Setup page is very similar to the Network pane in System Preferences. Just like your Mac, the WET11 has to have proper TCP/IP settings in order to function on your network (see "Face Time"). The settings you need to enter into the Setup page will vary depending on how your network is configured. If all your Macs get their IP addresses from a DHCP server, you should be able to select the Obtain An IP Address Automatically (DHCP) option and be done with the process.

A likelier scenario, though, is that your Internet provider has assigned a limited number of IP addresses to you. If you're running an AirPort Base Station, the best option is to select the Distribute IP Addresses option, located in the Network tab of the AirPort Admin Utility application. When you do this, your Base Station will assign temporary addresses to any device that connects to it, including the WET11. Most other wireless routers offer similar functionality, although the option may be called DHCP And NAT. If you're using a Mac with an AirPort card installed, you'll need to visit the Internet tab within the Sharing pane of System Preferences. Select the Share Your Internet Connection option, and click on Start—your Mac will perform the same routing functions that a Base Station would.

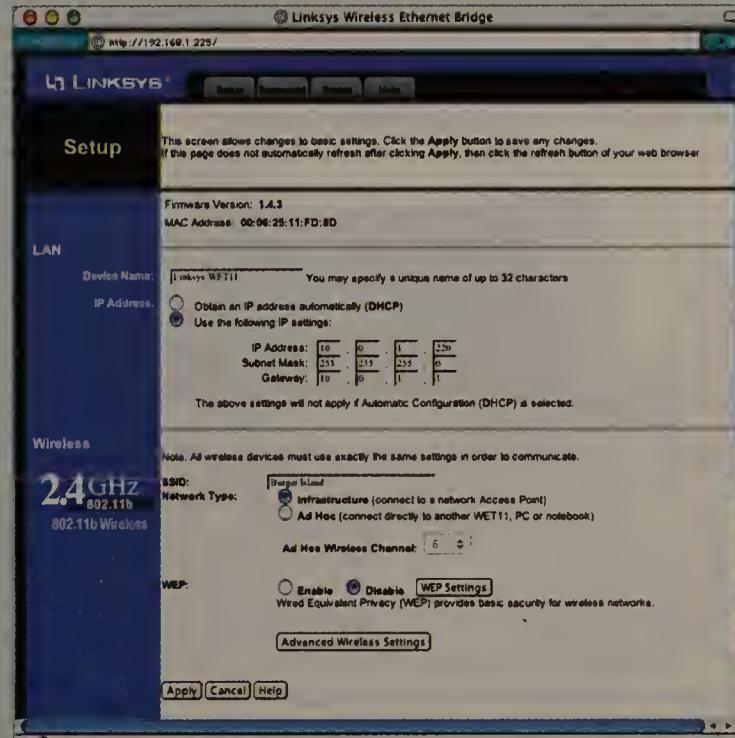
Likewise, with this approach you can set the WET11 to obtain an IP address—**10.0.1.10**, for example—automatically. But the drawback is that you have to configure the WET11 via a Web interface, and devices that use DHCP can have different IP addresses at different times. This can make finding devices on a network difficult, since you'll have to guess what their IP addresses are. Also, if you're using a Base Station's Distribute IP Addresses feature, the WET11 will be part of a private, internal network that you can't access from the outside world.

If you want to connect to your WET11 reliably, you'll need to configure it manually. Enable the Setup page's Use The Following IP Settings option, and then assign your WET11 a static IP address that is within the

range of the internal network *and* is a number so large that your Base Station will probably never have to count that high. I gave my WET11 the IP Address **10.0.1.220**—any number higher than 200 in the fourth position will probably suffice; I then set Subnet Mask to **255.255.255.0** and Gateway to **10.0.1.1**. That way, when I'm attached to my AirPort network, I'll be able to bookmark <http://10.0.1.220> in my browser and know that it's the WET11's configuration page.

Before you save your WET11's network settings, you need to fill out a few more fields on the Setup page. In the SSID field, enter the name of your Base Station—for example, **Burger Island**. In most cases you'll want to keep Infrastructure, the default setting, selected in the Network Type field. If your Base Station has a password, you'll need to select the Enable option next to WEP and click on WEP Settings, which will open a new browser window. In this window, you'll type the network equivalent password or WEP key you wrote down earlier. Enter it in the Key 1 field, and set 1 to be the Default Key. Then click on Apply at the bottom of the page to save your settings.

Once that's done, you'll return to the Setup page. Click on Apply, and your WET11 will update its network settings. Then be sure to click on the Password tab at the top of the page and give your WET11 a new password so no one else can modify the device's settings. Disconnect your Mac from the WET11. Then unplug the device, wait a moment, and plug it back in. The device's WLAN light should turn on, indicating that it's connected to your network. At that point, you can attach any device you want to the WET11's Ethernet port—including hubs, printers, AirPort-incapable Macs, and more—and they'll be on your network, connecting back to your Base Station without wires.—JASON SNELL



Face Time Once connected, the Linksys Web interface provides everything you need to set up your wireless bridge.



UPGRADE THE 15-INCH FLAT-PANEL iMAC

What You'll Need:

- #0 Phillips screwdriver
- #15 Torx screwdriver
- #10 Torx screwdriver
- Books (optional)
- Thermal paste
- Towel (optional)

The flat-panel iMac's friendly form masks a computer that can be devilishly difficult—but not impossible—to upgrade. Although you risk damaging your iMac if you perform the following procedures incorrectly, taking those risks can bring rich rewards, such as maximizing your iMac's internal RAM without having to pay Apple a \$200 premium for additional RAM (and installation). In addition, you don't have to pay a technician to upgrade your iMac's hard drive (and your iMac will be up and running far more quickly).

Upgrading the internal RAM and hard drive is a complicated process. These upgrades will void your warranty, and if you perform them, you'll leave clear evidence that you've opened your iMac. If you're not comfortable rummaging around inside a computer, don't upgrade your iMac beyond installing an AirPort card and additional RAM in the user-upgradable area of the iMac.

Now that you've been suitably warned, turn off your iMac and take the following steps to upgrade its RAM and hard drive.

Step 1: Make the Mac Comfy

Retrieve the box your iMac came in and remove the Styrofoam piece that secured the iMac's base and screen. Place the rounded portion of the Styrofoam on a work surface with the open slot facing you. Detach all the iMac's cables except the power cable. While supporting the iMac's neck and base, lay the iMac on its back so that the arm and screen lay atop the Styrofoam and the Apple logo on the front of the

iMac faces right. You may want to place a towel beneath the iMac base to protect your work surface and the base.

If you've disposed of the original packaging, construct a protective cradle for the iMac's display out of stacks of books and a towel.

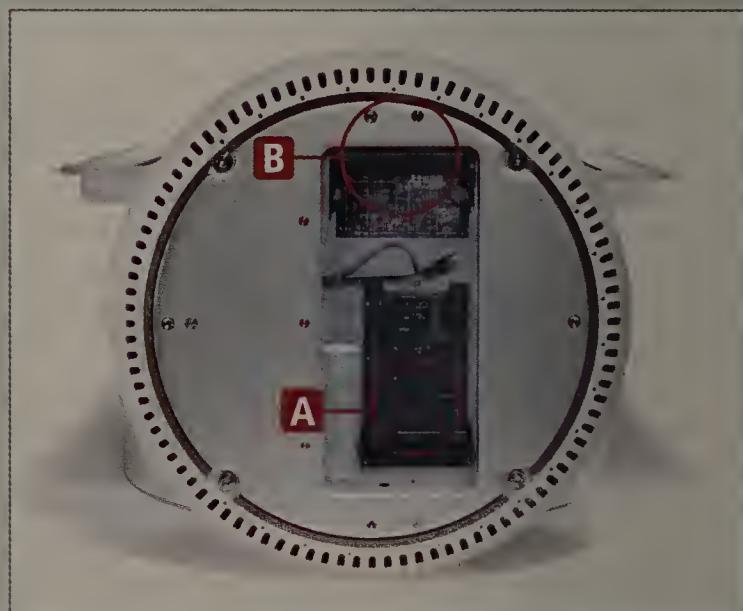
Step 2: Access the User-Upgradable Components

Using a #0 Phillips screwdriver, loosen the four screws at the bottom of the user-access plate. These screws remain attached to the plate, so once they're loose, pull on two of them to remove it. Set it aside.

Beneath the cover is the AirPort card slot **A** and one user-upgradable RAM slot **B**. Before proceeding, touch the inner metal plate to discharge any static electricity you may harbor; then unplug the iMac's power cord.

(If you intend to upgrade the iMac's internal RAM and hard drive, don't upgrade the RAM and AirPort card yet. The RAM and AirPort slots should be empty when you access the interior of your Mac. If they're occupied, remove the RAM and AirPort card, and then replace them when you've completed the internal upgrades.)

The user-upgradable RAM slot accommodates a 128MB, 256MB, or 512MB PC133 SDRAM 144-pin SO-DIMM. To upgrade the RAM, insert a compatible RAM module at a 45-degree angle and press it into place. To add an AirPort card, slide the card in so that the AirPort label faces down, and attach the AirPort antenna.

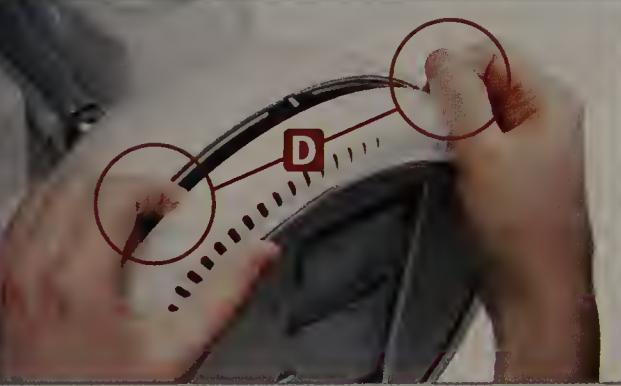
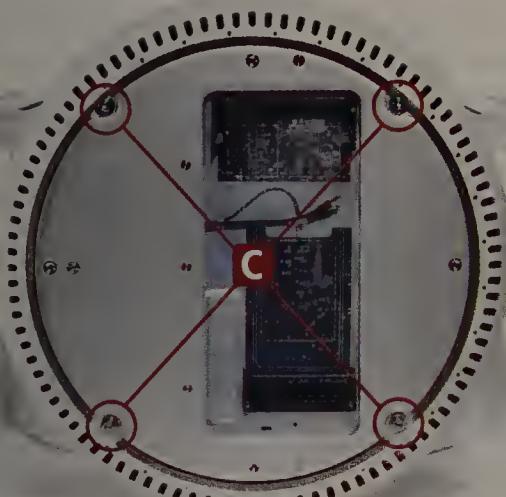


These iMacs can hold as much as 1GB of RAM, but the default amount of RAM in new iMacs is only 256MB. Because you can't purchase 768MB of RAM on a single module, it's impossible to upgrade the iMac's RAM to its full capacity via the user-upgradable RAM slot unless you have 512MB of RAM in the internal RAM slot. The following steps will show you how to upgrade an iMac's internal RAM.

Step 3: Remove the Bottom Housing

Using a #15 Torx screwdriver, remove the four Torx screws from the bottom of the metal housing **C**. Place your fingernails in the plastic seam that runs around the bottom of the iMac's base, and gently pull down so that the bottom housing opens toward your work surface **D**. Put a phone book underneath the housing to support the edge closest to you (you could damage the cabling inside the iMac if you force the bottom housing to lay flat).

To detach the bottom housing from the upper base, you'll have to disconnect six cables: the rectangular power connector **E**, the hard-drive and optical-drive data connector **F**, the AC-line filter connector **G**, the AirPort-antenna connector **H**, the video connector and its cover **I**, and, once you remove the Torx-10 screw, the grounding cable **J**. Pay attention to how these cables are arranged so you can put them back properly.



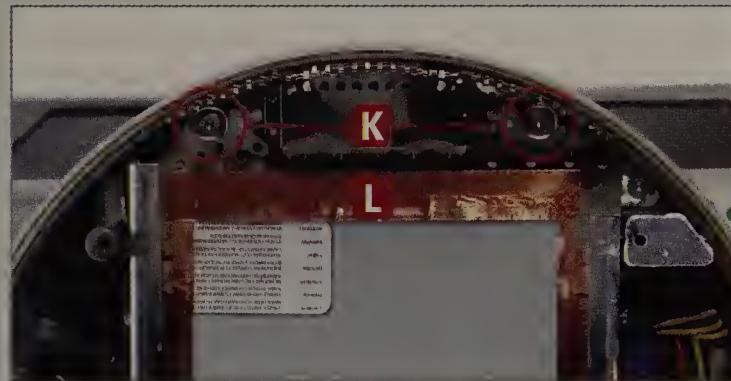
Step 4: Upgrade the Interior RAM

The iMac's internal RAM slot requires a PC133 SDRAM 168-pin SO-DIMM. To upgrade the RAM in this slot, pull apart the ejector tabs on the side of the RAM currently in the slot and lift out the RAM. Line up the notch in the new RAM with the key in the RAM slot. Insert the new RAM in the slot, and press down until the ejector tabs snap into place.

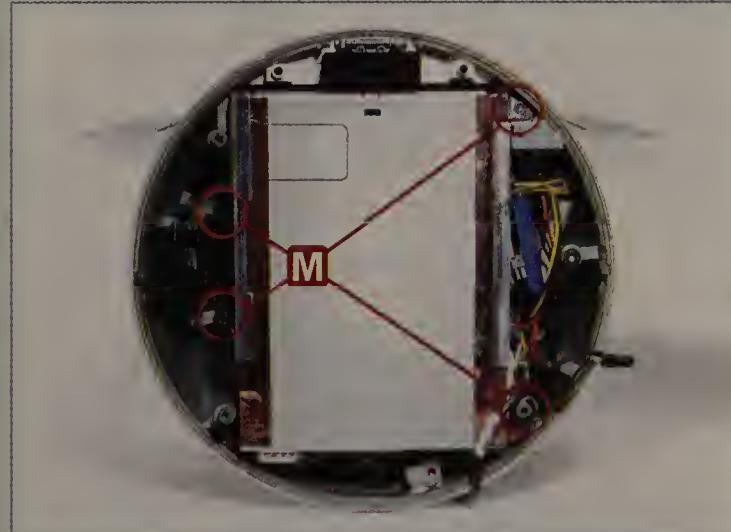
Step 5: Remove the Drive Carrier Assembly

In the upper portion of the iMac's base is a large silver box. This is the drive carrier assembly—a bracket that holds both the optical drive and hard drive in place. Before removing it, rotate the iMac's base so the Apple logo faces up.

Remove the two Torx-10 screws that hold the EMI shield in place **K**. A strip of copper tape attaches the EMI shield to the optical drive **L**. Peel this tape away from the optical drive, set it aside, and then gently pull off the EMI shield.



Remove the drive carrier assembly's four Torx-10 screws **M**. Grip the assembly in both hands and firmly pull up and out. There are power cables attached to the assembly, so don't pull so hard that you risk stressing these cables. Once the assembly is clear of the base, turn it to the right.



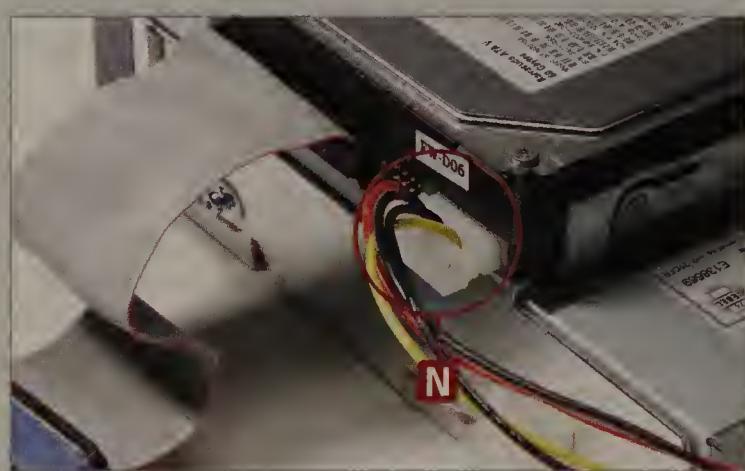
A white cable clip is attached to the top of the carrier assembly just above the optical drive. The video and AirPort antenna cables are routed through the clip. Press down on the cable clip to open it, and pull the



UPGRADE THE 15-INCH FLAT-PANEL iMAC (CONTINUED)

cables away from the clip so the carrier assembly is no longer tethered to the iMac.

Detach the power cable that's connected to the hard drive **N**. Pull gently but firmly on the *connector*, not the cable. (Pulling on the cable may damage it.)



Step 6: Remove the Hard Drive

The hard drive is covered by a white wrapper that's sticky on one side. You must peel it away to access the screws that attach the hard drive to the carrier assembly. Carefully remove the wrapper **O**, and stick a couple of its corners to the outside of the iMac's base to keep it from sticking to itself. Detach the data cable from the hard drive and remove the four Torx-10 screws—two on each side of the assembly—that hold the hard drive in place **P**. Slip the drive out of the assembly and replace it (15-inch flat-panel iMacs use Ultra ATA/66 7,200-rpm hard drives by default).



Step 7: Replace the Hard Drive and Reassemble the Carrier Assembly

Reassembling the iMac mostly requires working backward through the steps you followed to disassemble the computer. After screwing the new drive into the bracket, attach its data cable. Replace the white wrapper, carefully smoothing it down as you go.

Thread the video and AirPort antenna cables through the cable clip and reattach the power connector to the hard drive. Push the carrier assembly back into place. Be sure the data cable that attaches to the iMac's motherboard is not trapped beneath the assembly.

Replace the four carrier-assembly screws, put the EMI shield into position, and press the copper tape onto the optical drive. Replace the two EMI shield screws.

Step 8: Apply Thermal Paste

A thermal pipe inside the iMac draws heat away from the processor and vents it through the base of the computer **Q**. The outlet for this thermal pipe sits flush against a mating surface (where the two parts meet) attached to the upper part of the iMac's base **R**. Between the thermal pipe and mating surface is a thin coat of silicon paste (known as thermal paste or heat-sink compound). This paste—available at electronics shops for around \$5 a tube—helps eliminate air gaps between the surfaces, so heat goes out the pipe rather than into the iMac.



When you separate the bottom housing from the base of the iMac, you break the thermal seal. You must restore it with a fresh coat of thermal paste when you reassemble the iMac.

To do so, first scrape off the old thermal paste from both surfaces with the edge of a credit card. Don't use an abrasive material, since it may score the surfaces and create gaps that prevent the connection from sealing properly. Also avoid liquid cleaners—they could damage the iMac's internal parts. When the surfaces are clean, smear a thin layer of thermal paste on the mating surface and spread it evenly **S**. Remove any paste that gets in the vent hole.

Step 9: Reattach the Bottom Housing

With the iMac thoroughly pasted, reattach the grounding cable, the video connector and its cover, the

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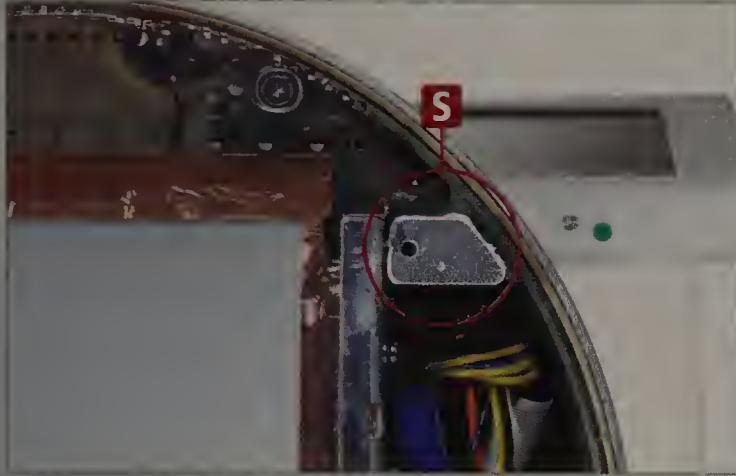
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AirPort-antenna connector, the AC-line filter connector, the hard-drive and optical-drive data connector, and the rectangular power connector. Then replace the screw that holds the grounding cable in place. *Important: Tuck the cables inside the iMac's base—if you pinch the power cable between a screw post and the edge of the housing, you could cause a short that will destroy your iMac!* Push the bottom housing into place and screw in the four Torx-15 screws. To ensure a tight seal, tighten these four screws so they're firmly in place (but not so tight that you can never loosen them).

Install the RAM module and AirPort card that sit beneath the user-access plate, attach the AirPort antenna, and then screw the plate back into place.—CHRISTOPHER BREEN, WITH ASSISTANCE FROM McSQUARED (www.mcsquared.org)

IMPROVE YOUR DIGITAL-CAMERA PHOTOS

Easy

Digital-camera manuals might be excellent tools for learning foreign languages such as French and Spanish, but they don't tell you everything you need to know about taking good pictures. Here are two surefire techniques that the technical writers forgot to include.

Warm Up Those Cloudy-Day Tones Overcast days are great for taking portraits, because the filtered light produces soft, flattering tones. It's like having a giant diffuser in the sky. Unfortunately, under these conditions the color temperature shifts from warm and bright to cool and bluish. You may not notice this effect, but your camera does, and the resulting pictures never look quite as cozy as your subjects did. The solution is to warm up those tones by moving your white-balance setting from "automatic" to "cloudy" (your camera may use different terms). The methods for changing settings vary from camera to camera, so pull out your manual for help.

Sunglasses Make Great Polarizers Are you ever discouraged because you want to add a little pizzazz to your outdoor shots, especially on days with pretty clouds in the sky, but your camera doesn't have a filter ring for attaching a polarizing filter? Just place your

stylish polarizing sunglasses over your camera lens and fire away. The polarizing effect will reduce glare, increase color saturation, and make those clouds come to life. The better the glasses, the stronger the effect.—DERRICK STORY



DERRICK STORY

Warming Trend Overcast days are great for soft-light portraits—except for the cool, clammy skin tones (left). Set your camera's white balance to "cloudy," and your model will come back to life (right).



The Apple Cinema Display (left) and the NEC MultiSync LCD2080UX (right)

Get the Skinny

Big Flat-Panel Monitors
Are More Affordable Than Ever.
Should You Buy One?

BY JAMES GALBRAITH

AS THE PRICES OF LCD MONITORS CONTINUE TO DROP, these sleek flat-panel displays are replacing bulky CRT monitors. And while a stylish design, smaller size, and lower weight are sound reasons to buy an LCD, they're not the only benefits. For example, LCD technology allows for flicker-free screens, which are easier on the eyes, and LCDs consume less energy than CRTs.

Despite their falling prices, LCDs have some disadvantages. You may pay twice as much for an LCD as you would for a CRT with the same screen size. What's more, LCDs trail behind CRTs in terms of color accuracy (see "What's the Difference?").

But if these limitations are acceptable for your work (and play), an LCD can be a real pleasure. We'll help you wade through the sea of specifications so you can choose the right one for you, and we'll provide information on specific models in our review of eight 20-inch (or slightly larger) LCDs.

Get Yourself Connected

A digital connection between your Mac and a flat-panel monitor is better than an analog connection. LCDs use an internal digital signal; an analog connection requires two conversions, which introduce signal noise that may cause your screen to appear softer and less focused, with harder-to-read text. When you're shopping, make sure you choose an LCD with at least one digital connector. Many offer analog and digital connectors, and Apple's LCDs have only digital connectors.

Digital on Both Sides An LCD with a digital connector won't improve your viewing experience if you have an analog-only Mac. Fortunately, for the last several years all Power Macs have included an ATI or Nvidia graphics card with at least one digital connector. Recent Power Macs ship with two digital connectors: one industry-standard DVI (Digital Video Interface) port and one proprietary ADC (Apple Display Connector) port. They also come with a small cable that lets you connect a standard 15-pin analog, VGA (Video Graphics Array) cable to the DVI port.

If your Mac doesn't have a digital connector, now might not be the right time to buy an LCD. But if a monitor purchase *is* in your near future, we recommend spending the extra money for an LCD with both analog and digital connectors. That way, you can take advantage of the cleaner digital signal when you upgrade your computer.

It's Got the Power Apple's ADC technology offers the same digital-connection quality as DVI but goes two steps further by

powering the display and providing a USB connection with just one cable. If you've got an ADC-equipped Mac and want a clutter-free connection, an Apple LCD is a good choice. If your Mac doesn't support ADC, the need for a bulky and expensive ADC converter is a point against Apple's LCDs.

The Fine Print

When you're comparing LCDs, look closely at warranties. Coverage varies—for example, most manufacturers offer three-year limited warranties, but Apple's LCDs come with a standard one-year warranty. Most companies also let you buy longer coverage.

Dead Zone Another thing to look for in warranties is the manufacturer's policy on pixel defects. These defects (often referred to as "dead pixels") are fairly common. They're most noticeable on a solid background and can appear as either black or colored specks. Depending on their location and proximity to one another, you may have a hard time picking them out during regular viewing.

Most manufacturers consider two or three dead pixels acceptable. Some companies require many more before they'll replace a monitor. These policies are often buried in the documentation, complicated, or not published at all, so you'll have to do your homework by visiting the vendor's Web site or calling the company directly.

Look on the Bright Side

Brightness and contrast are two separate measurements, but how they interact can affect your overall viewing experience.

Brightness A monitor's brightness is measured in candelas per meter squared (cd/m^2). When displaying a completely white screen at full brightness, the typical LCD reaches about $250 cd/m^2$. Although this can be quite eye-catching, you may find yourself reducing the brightness, especially if you work in a space without much ambient light. CRTs tested under the same conditions are generally rated at around $100 cd/m^2$.

continues on page 70



Formac Gallery 2010 Oxygen



Hitachi CML200B



Samsung SyncMaster 213T

RICK RIZNER

EIGHT FLAT-PANEL MONITORS

WITH ACCURATE COLOR AND WIDE VIEWING ANGLES, TWO LCDS STAND OUT FROM THE CROWD

Apple's first LCD monitor, introduced in July 2000, had a 15-inch screen and cost \$1,299. Apple still offers an LCD for \$1,299, but it's a full 5 inches larger. Other companies are also offering larger flat-panel displays at reasonable prices. Macworld Lab rounded up eight digital LCDs; each had at least a 20-inch screen and a native horizontal resolution of at least 1,600 pixels. Be sure to shop around—we found one of these monitors online for a little more than half the manufacturer's suggested retail price.

After we put them through their paces, two of the displays stood out as the best. The wide viewing angle and commendable color fidelity of the 20-inch Apple Cinema Display made this screen come in ahead of the pack. And the NEC MultiSync LCD2080UX offered very similar screen performance with greater compatibility and flexibility, for people whose computers don't have the proprietary Apple Display Connector.

In addition to the Apple and NEC monitors, we looked at the Formac Gallery 2010 Oxygen, Hitachi CML200B, Samsung SyncMaster 213T, Sharp LL-T2020B, Sony SDM-X202, and ViewSonic VX2000.

Performance Anxiety

To judge the performance of each monitor, we connected it to a PCI ATI Radeon graphics card installed in a dual-1GHz G4

system running OS X 10.2.5, and we ran compatibility tests. Next, a jury of experts examined the monitors displaying Adobe Photoshop images, Microsoft Office documents, and test patterns from the DisplayMate suite (www.displaymate.com).

Compatibility We checked each monitor at each mode (resolution and refresh-rate setting) that appeared in the Mac's display controls (we used digital connections in both OS 9 and OS X, and analog connections in OS X). The Sharp and the ViewSonic recognized and successfully displayed all modes when connected to an AGP Radeon 7000 card, but they had trouble when connected to a PCI Radeon card, telling us that the card's signal, with a refresh rate of 59Hz, was out of range—even though the supported mode is supposed to be 60Hz.

Legibility To judge text legibility, our jury looked at documents that contained a variety of fonts in different sizes, but the jurors had a hard time picking a clear winner. One juror thought the Apple monitor's text was clearest; others thought they all earned a rating of Good.

Viewing Angle LCDs look best when viewed from straight on, but some do a much better job than others of retaining consistent color when viewed from an angle. The jury gave both the Apple and the NEC an Excellent rating in this test; these LCDs had only slight shifts in the darkest areas of the screen. The Hitachi and

Large LCDs Compared

Model	Apple Cinema Display	Formac Gallery 2010 Oxygen	Hitachi CML200B	NEC MultiSync LCD2080UX	Samsung SyncMaster 213T
Rating	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Screen Size (in inches)	20.0	20.1	20.0	20.1	21.3
Price	\$1,299	\$1,099	\$1,443	\$1,699	\$2,399
Interface	digital (ADC)	digital (ADC) and analog	digital (DVI) and analog	digital (DVI) and analog	digital (DVI) and analog
Viewing Angle	170 degrees	170 degrees	170 degrees	176 degrees	170 degrees
Contrast Ratio	350:1	600:1	500:1	350:1	500:1
Brightness	230 cd/m ²	250 cd/m ²	250 cd/m ²	250 cd/m ²	250 cd/m ²
Native Resolution ^A	1,680 × 1,050	1,600 × 1,200	1,600 × 1,200	1,600 × 1,200	1,600 × 1,200
Pixel Response Time ^B	not specified	10–25	25	25	25
Dimensions (in inches) ^C	21.3 × 6.9 × 17.3	21.5 × 8.1 × 19.0	19.4 × 8.8 × 17.6	17.4 × 7.9 × 14.4	18.6 × 8.7 × 18.0
Weight (in pounds)	18.9	16.8	22.5	23.1	11.2
Energy Use ^D	3,60	3,60	5,70	1,54	3,75
Warranty	1 year	1 year	3 years	3 years	3 years
Image Quality ^E					
Text	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Color	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Viewing Angle	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Pros	Great viewing angle.	Inexpensive.	Best speakers.	Highly flexible; great viewing angle.	Slightly larger screen for comparable price.
Cons	Not very flexible.	Not very flexible.	Control buttons hidden under display bezel; colors change with viewing angle.	No speakers or USB.	Not very flexible; colors change with viewing angle.
Contact	www.apple.com	www.formac.com	www.hitachidisplays.com	www.necmitsubishi.com	www.samsungusa.com

^AIn pixels. ^BIn milliseconds. ^CWidth × depth × height. ^DIn watts. The first number refers to usage in standby or sleep mode; the second, maximum usage. ^EA panel of jurors assessed quality and assigned ratings in

Samsung monitors had the most-prominent shifts, with dramatic color differences apparent when jurors moved from left to right. The rest of the displays fell in the middle of these extremes.

Accurate Color To rate the monitors' ability to display accurate color, we viewed our standard Photoshop test document, which features many varied elements and familiar colors, such as those of fruits and vegetables. Again, the Apple and the NEC were neck-and-neck, followed by the Formac, Sharp, and ViewSonic. The Hitachi and Samsung trailed the group, with oversaturated reds and blown-out highlights.

Video When the LCDs displayed video, we didn't notice any significant difference between the monitors with faster reported pixel response times and those with slower times. But we did notice that the LCD with the slowest reported pixel response time, the Sony, had the least amount of motion flicker when we dragged windows or pages of text around the screen. Unless you're an avid Pong player, you shouldn't worry too much about motion flicker.

The Looks That Kill

The most important thing about an LCD is its screen, but what wraps around the screen also matters.

The thin bezels, or outside cases, of the NEC and Sharp models, and the more traditional picture-frame style of the Hitachi and Sony, are all dressed in a slimming black. The ViewSonic throws in some touches of silver. The Samsung sports an attractive, thin, metallic bezel, while the Formac follows Apple's lead, with a translucent picture-frame design complete with a one-legged leaning stand.

Sharp LL-T2020B	Sony SDM-X202	ViewSonic VX2000
●●●●	●●●½	●●●½
20.1	20.0	20.1
\$1,799	\$1,499	\$1,689

digital (DVI) and analog	digital (DVI) and analog	digital (DVI) and analog
170 degrees	170 degrees	170 degrees
350:1	350:1	600:1
220 cd/m ²	250 cd/m ²	250 cd/m ²
1,600 × 1,200	1,600 × 1,200	1,600 × 1,200
25	30	25
19.0 × 8.0 × 18.0	25.9 × 13.7 × 23.4	19.0 × 8.3 × 19.8
23.0	26.5	18.5
6.52	3.78	3.60
3 years	3 years	3 years

●●●●	●●●●	●●●●
●●●●	●●●●	●●●●
●●●●	●●●●	●●●●

Very flexible.	Good speakers.	Solid overall image quality.
Had trouble with older graphics cards; digital cable not included. www.sharpsystems.com	Bluish cast. www.sony.com	Had trouble with older graphics cards; speakers sound tinny. www.viewsonic.com
each category. ●●●● = Excellent; ●●●● = Very good; ●●● = Good; ●● = Fair; ● = Poor.		

Flexibility While the Apple, Formac, and Samsung cases look good, they—like the Hitachi and ViewSonic designs—don't offer much in terms of flexibility. The most customizable were the NEC and Sharp displays, which could move up and down, tilt forward and back, swing left to right, and pivot. The Samsung could do all those tricks except move up and down.

The ability to rotate 90 degrees clockwise into a portrait mode is meant to let you adjust your screen to resemble a typical paper document. Unfortunately, Portrait Displays' MacPivot software (925/227-2700, www.portraitdisplays.com)—required to rotate the on-screen image—doesn't work in OS X, and the company has no plans to update the program. When we installed MacPivot in OS 9, we found that the software supported only resolutions as high as 1,024 by 1,280, not as high as the native resolution of the displays. If a pivoting monitor is crucial to you, buy a monitor with a native resolution that matches one of MacPivot's supported modes, and don't plan on working in OS X.

Easy Access Some of the displays' controls were easier to use than others', but only the Hitachi gets dinged for hiding the control buttons under the bottom of the display bezel, which made navigating the user menus very difficult.

Extras, Extras

The Sony and ViewSonic models ship with built-in speakers. The Hitachi's speakers are 2.5-inch-wide black bars that connect to the side of the display. The ViewSonic's speakers sounded tinny; in fact, we preferred our G4's internal speaker. The speakers on the Sony are a bit better, but the Hitachi speakers were the only ones good enough to consider using for frequent audio playback.

The Apple, Formac, and Sharp displays each have two USB ports on the back, convenient for hooking up keyboards or other peripherals. The Sharp requires a separate USB cable from the computer to the back of the display; the Apple and Formac don't because they both use Apple's proprietary ADC technology. That's a plus—as long as your Mac can take advantage of it.

Keep Your Receipt

On the surface, the warranties on all these displays appear straightforward. Six of the monitors come with a standard three-year limited warranty. The Apple and Formac models include a standard one-year limited warranty. But dig a little deeper, and you'll find quite a difference in the conditions under which each company will replace your display. Sharp will replace your display if it has more than five dead subpixels and no two are within an inch of each other. Hitachi will replace your display if it has more than five dead subpixels. ViewSonic draws the line at ten subpixels. Apple says that if you think your monitor should be replaced, you can send it in. If the company doesn't agree, you'll be charged for shipping.

Sony and NEC use the ISO 13406-2 standard (for details, go to www.nec-mitsubishi.com/specials/online_englisch/iso/). The Formac Galley 2010 Oxygen allows a maximum of seven dead pixels.

Macworld's Buying Advice

If your Mac has an Apple Display Connector, you'll be happy with the 20-inch Apple Cinema Display. If you're looking for something a little more flexible, the NEC MultiSync LCD2080UX offers comparable performance with greater compatibility and adjustment options.

continued from page 67

Contrast Ratio An LCD's contrast ratio is the difference in *luminance*, or intensity of light, between the display's purest white and purest black. Most of today's LCDs have a contrast ratio of 350:1 or higher. A higher ratio should mean more-legible black text on a white background. When you're considering monitors, keep in mind that a bright display with a low contrast ratio may appear less bright than a dimmer display with a higher contrast ratio.

Angling for a Better View

An LCD screen's colors can shift dramatically when you change the angle from which you're viewing it. Like lightbulbs, CRTs cast light in all directions, giving you a viewing angle of nearly 180 degrees. But because light passes through an LCD's cells in a straight line, looking at an LCD is like looking through a narrow tube: moving away from the tube's center—left, right, up, or down—can seriously affect what you see on screen.

The viewing-angle measurement indicates how far from directly in front of the screen you can go before shifts in color make the LCD's screen unreadable. If you often have groups of people looking at your screen, you'll be better off with a flat panel that has a viewing angle that's as close to 180 degrees as possible.

Going Native

Every LCD has a native resolution—that is, the number of red, blue, and green subpixel bundles running horizontally and vertically across the display. Most LCDs have a *scalar*, which allows them to display resolutions lower than their native one.

For example, if your LCD's native resolution is 1,024 by 768 pixels and you want to play a video game that runs at 640 by 480 pixels, the scalar can divide those 640 horizontal pixels among the 1,024 physical pixels on your screen and then apply smoothing algorithms to the image.

The scalar tries its best, but the process is far from perfect. The alternative resolutions are handy in a pinch—if you need to attach the display to a computer whose graphics card can't output the display's native resolution, or if your computer boots into a nonnative mode, for example—but to get the clearest, sharpest images, you'll definitely want a display with a native resolution that matches your common usage.

Pixel Response Time

If you plan to watch movies or play games on your new LCD, you may think that pixel response time is an important factor in your buying decision. Expressed in milliseconds, response time refers to how long a single pixel takes to go from on to off. (Man-

What's the Difference?

There are several basic differences between CRT and LCD technologies.

CRT Guns Tiny red, green, and blue phosphor dots coat the inside of a CRT monitor's screen. Three guns create images on the screen by shooting electrons at the phosphors, which glow and then quickly decay. A CRT is constantly redrawing on-screen images. The amount of time between screen redraws is called the refresh rate. Slower refresh rates mean more flicker, which can be hard on your eyes.

LCD Pixels LCDs don't have phosphor dots. Instead, each pixel on an LCD is a bundle of three subpixels (red, blue, and green). When voltage is applied to the liquid crystal material used in these displays, the crystals move to either allow light to pass through or block light. The pixels stay lit until they are turned off, so there's no flicker.

Color Control With a CRT, it's easier to adjust color and calibrate the monitor, because you can control the internal electron guns. However, each subpixel in an LCD is individually addressed, controlled by its own transistor, so maintaining consistent color across the display is more difficult. Colors on most LCDs also shift depending on the angle from which you're viewing the display.

Energy Consumption Most LCDs require less than half the power that a comparably sized CRT uses. They have a lower operating temperature, so if you work in a small space or are looking to replace several monitors, an LCD could even save you money on your cooling bill.

ufacturers sometimes report two numbers: the time a pixel takes to turn off, and how long it takes to come back on.)

Theoretically, monitors with slow response times might exhibit smearing or ghosting when displaying video. In our testing, we found that regardless of their response times, none of the monitors had such problems (see "Eight Flat-Panel Monitors"). Interestingly, the display with the longest pixel response time showed the least motion flicker when we dragged windows around the screen. Unless a monitor's reported pixel response time varies widely from those of other displays you're researching, this factor shouldn't play a large part in your buying decision.

The Last Word

If absolute color accuracy is your bread and butter, you're probably still tied to your CRT. But if that's not the case—and if you're willing to spend the extra money—you can expect to save desktop space, reduce eyestrain, lower your energy consumption, and possibly gain the envy of your friends and coworkers by purchasing an LCD monitor. □

JAMES GALBRAITH is the Macworld Lab Test Manager.



Sharp LL-T2020B



Sony SDM-X202



ViewSonic VX2000



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- How to Set Up a Home Recording Studio
- Music Editing on Your Mac

Mac OS X Hints

Mac OS X is a complex and powerful operating system, and even those of us who have been using it since its initial release have to admit that we don't know all its secrets yet. Here are some tips and tricks you probably haven't encountered in your everyday use of OS X—they can help you customize your computing experience for greater efficiency and enjoyment.

The Listless Login Screen

There are two ways of displaying the login panel. The user-friendly way is the list of names, but for greater security (though less convenience), you may prefer to require that would-be Mac users type both their names *and* their passwords into text boxes. This way, would-be evildoers have to know both the correct spelling of a legitimate account holder's name and the password.

Most people think that getting to this text-box login screen entails opening System Preferences, clicking on Accounts, clicking on Login Options, and turning on Name And Password. The truth is, though, that there's a much quicker way to switch, without even involving System Preferences—it's a trick you might use when, for example, you want to log in as console or root (advanced techies, you know who you are), which requires that you type the name in.

From the list-of-names view, hold down the option and enter keys, and

then click on any name. The login panel switches to displaying the text-entry boxes, where you can log in as root or console.

To switch back to the list view, just click on the Go Back button in the lower left corner of the login panel. (Changing the panel this way is a onetime affair; at the next login, the dialog box will be back to its previous state.)

The Silence of the Startup Items

What Apple calls a login item is a program, file, folder, or other item that you've designated to open automatically when you log in. If the first thing you do is check your e-mail or a favorite Web page, by all means designate your e-mail program or Web browser as a startup item, so it will be open and ready when you've finished your morning cof-

fee. (You build your list of automatically opening items by dragging their icons into the Login Items panel of System Preferences.)

But sometimes you don't want your regularly scheduled programs to fire at startup. Maybe you're dying to see whether your spouse, boss, or senator responded to your e-mail and you just want to get to your desktop as quickly as possible, without waiting for all your login items to open. Or maybe you've recently installed a program that you think might be causing problems when it autostarts.

In these cases, you'll want to stifle login items, preventing them from opening. To do that, hold down the shift key just after entering your user name and password on the login screen; then press return. You arrive at the desktop, with nothing open but your mind.

Adding Text to the Login Screen

In case you've been lying awake wondering how to add a line of customized text to your login window, help is at hand. No, really. Maybe you work somewhere that requires a disclaimer on the usage of computing resources. Or maybe you want to add a personal touch to your login window—a daily reminder to floss, for example (see "Login Text"). Adding this line of text entails editing a special preference file—a running theme in the OS X hacking community.

Go to the root of your hard drive and open Library: Preferences. Inside is a file called com.apple.loginwindow.plist. To edit it, drag its icon onto theTextEdit icon (which is in your Applications folder).

The file contains a long list of bracketed words known to programmers as tags. Just below the first <dict> tag, insert these two lines:

```
<key>LoginwindowText</key>
<string>Your text goes here</string>
```

Replace *Your text goes here* with whatever you'd like displayed in the login window. (The text is left-justified. If you want it to appear centered, you'll have to type a bunch of spaces in front of it.)

Mac OS X Hints

Jaguar Edition



Rob Griffiths
Edited by David Pogue



Tipping the Scales

This article is an excerpt from *Mac OS X*

Hints, Jaguar Edition (O'Reilly, 2003), by

Rob Griffiths. You can find the book at www.oreilly.com or at your local bookstore.

Choose File: Save. WhenTextEdit tells you it can't save the document, click on Overwrite. The next time you log in, you'll savor the results of your modification.

Changing the Alert Volume

As far as your speaker volume is concerned, there are two categories of sound in OS X: alert beeps (noises that you hear when your system does something it's proud of, such as receiving an e-mail, or concerned about, such as crashing a program) and overall volume (the sound level for playing CDs, MP3s, and Doom). The volume control in your menu bar (which you can turn on in the Sound panel of System Preferences) changes the overall system volume. But if you drag the slider while holding the option key, you change only the alert volume.

The Volume-Changing Click

When you increase or decrease the volume on your OS X machine via the keyboard, you hear a muted clicking noise to help you gauge the new level as you set it (unless you've turned off this feature in the Sound preferences panel). If you want a longer or less coworker-friendly noise, you can change this click to anything you'd like. All you need is a standard sound file in AIFF format—a Bart Simpson snippet, a rude noise from the Internet, or whatever.

Then proceed like this:

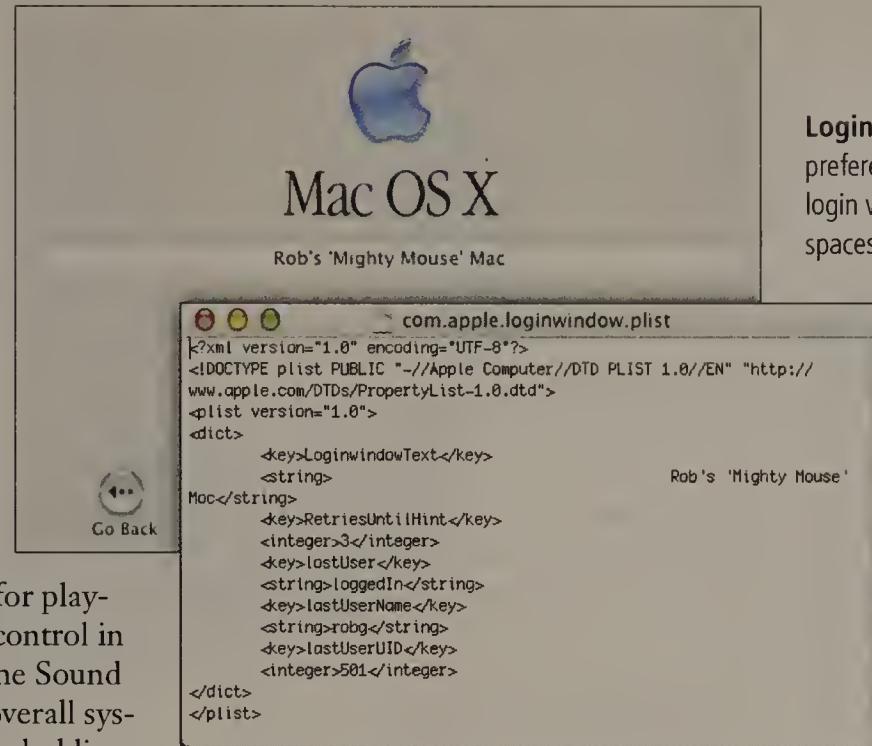
1. Open System: Library: LoginPlugins: Bezel-Services.loginPlugin: Contents. Your job is to replace the standard sound file within Contents: Resources—but you'll be thwarted by the highly skeptical attitude that OS X takes toward people who try to fool around with it. In short, you're not allowed to change anything in the System folder. But you, intrepid hacker, don't care about that. As long as you have an administrator account, you can change whatever you like just by telling the system software that the owner of the Resources folder is *you*, not it.

2. Highlight the Resources folder, and then choose File: Get Info. The Info window will appear.

3. Expand the Ownership & Permissions triangle. If you see a locked-padlock icon, click on it. OS X will ask you to prove your administrator status by entering your account name and password; then click on OK.

4. From the Owner pop-up menu, choose your account name, which is designated by the cute suffix (*Me*). You've just told OS X that *you* are the rightful owner of the Resources folder, and that therefore you're allowed to make any changes you like—such as replacing the volume-click sound. Leave the Get Info window open for now.

5. Within the Resources window, highlight the file called volume.aiff. Choose File: Duplicate. You've



Login Text By editing one simple preference, you can add text to the login window. Here, we inserted spaces to center the text.

just created a backup, in case you decide to restore the original volume-click sound.

6. Delete the volume.aiff file. Drag your replacement sound into the window, and rename it so that it is now called volume.aiff.

7. Finally, you'll want to return the ownership of the Resources folder to OS X. In the Get Info window, choose System from the Owner pop-up menu. Close the Get Info window. The next time you log in and tap the volume keys to adjust your speakers, you'll hear your new volume-click sound—for better or for worse.



If anything went wrong—if you inadvertently chose a full-length sound file of Wagner's Ring cycle as the

volume-click sound, for example—repeat these steps, but remove your "bad" new sound and rename the backed-up original to return the folder to its premodification state.

Insta-Closing Multiple Windows

When you find yourself with several open windows in one program, especially in the Finder, don't waste time trying to close them individually. Instead, option-click on the red close button at the top left of any open window. Presto: All windows close simultaneously (except in Word v. X—Microsoft marches to a different drummer).

Scrolling Diagonally

At first glance, you might assume that scroll bars are an extremely inefficient mechanism when you want to scroll a window diagonally—and you'd be right. Fortunately, OS X includes an alternative scrolling system for such situations. Position your mouse inside a Finder icon- or list-view window; while pressing ⌘-option, you can drag—and scroll—in any direction, thanks to the little white-gloved hand cursor that appears at your command.

Adding an Eject Icon

The prescribed way to eject a CD or DVD is to press the eject (or F12) key on your keyboard. That's not much help if you have a non-Apple keyboard, if you have more than one drive capable of ejecting, or if, in a fit of troubleshooting, you find yourself without a

continues

keyboard altogether. Fortunately, there's a secret way to do the same thing: install the Eject menulet.

To find the installer, go to the root of your hard drive and open System: Library: CoreServices: Menu Extras. Inside that window, double-click on the icon called Eject.menu.

Now look at your menu bar, and you'll find the new Eject icon. Use it as a menu and choose the drive you'd like to eject.

Window Backgrounds

In icon view, you can use images or colors as the backgrounds for Finder windows. This option sounds like nothing more than eye candy. But it actually has a very practical *raison d'être*. If you color-code your windows, you know which folders are open on your desktop without even looking for their title bars. The windows also differentiate themselves when minimized in the Dock (see "Finder Pics").

For a more dramatic effect, give your hot-projects folder a light-red background. Give less-important stuff—lists of all the airline silverware you've ever stolen, or your screenplay-in-progress about a team of dachshund puppies who break an international weapons-smuggling ring—a light-blue background. Light green could signify your personal-finances folder. And an image of your favorite lawn ornament could be the background for your pictures folder.

To change the background color of a Finder window, follow these steps.

1. Make sure the window is in icon view, and then choose View: Show View Options. If you want to apply a color or picture to only one folder, select This Window Only at the top of the dialog box.

2. At the bottom of the box, choose either Color or Picture. Color brings up a little frame; when you click on it, the Colors dialog box appears. Click anywhere in the Color Wheel to select a tint, or play with the display options at the top of the box (Color Sliders, Color Palettes, Image Palettes, and Crayons). If you choose Picture, click on Select to open a dialog box you can navigate through to pick an image.

As you work, remember that low-contrast or light background colors and photos work best for legibility. Furthermore, if you decide to choose a photographic background, keep in mind that the Mac has no idea what sizes and shapes your window may assume in its lifetime. Therefore, OS X makes no attempt to scale down a selected photo to fit neatly into the window. If you have a high-res digital camera, you may see only the upper left corner of a photo as the window background. Use a graphics program to scale the picture down to something smaller than your screen resolution for better results.

Adding Quit to the Finder Menu

The Finder may start up automatically each time you log in, but behind the scenes, it's nothing more

than a standard OS X program. It may not appear to have a Quit command, but you can indeed quit the Finder when you need just a little bit more memory or computer horsepower for, say, some 3-D-graphical battle simulator.

There are a number of different ways to quit the Finder—force-quitting, for example. But if you find yourself wanting to quit the Finder with any regularity, the simplest way is to add a Quit menu item at the bottom of the Finder menu (see "Finder Quit"). Here's how to go about it:

Open Terminal and then type `defaults write com.apple.finder QuitMenuItem -bool yes`. Press Enter and restart the Finder. Now, lo and behold, you can press ⌘-Q (or choose Finder: Quit Finder) whenever you want to quit the Finder. When you need the Finder back, a simple click on its Dock icon revives it.

Cancelling a Drag and Drop

Suppose you're dragging an icon across the screen—and halfway through the operation, you decide you don't want to drop it. You could, of course, mouse back and drop where you started.

But life is too short. It's much easier to press the escape key (in the upper left corner of your keyboard) while dragging and then release the mouse button. A shrinking rectangle shows you the icon returning to its original location, no harm done.

Creating an Alias of Your Home Folder

For quick access, you might want to add an alias of your Home folder to another folder—or lots of other folders. Alas, when your Home folder is highlighted, the File: Make Alias option is grayed out.



This workaround lets you create aliases of any folder that does not allow alias creation via the menu.

The solution is to ⌘-option-drag your Home folder out of its window: presto—an alias is born.

The Permanence of Server Icons

If you're a network maven who regularly connects to a couple of servers, consider dragging the servers' icons onto the toolbar for easy access. In fact, you can set the servers to log you in automatically, so a single click connects you. Here's how to go about it:

1. In the Finder, press ⌘-K. The Connect To Server dialog box appears. If your network is working properly, you'll see a list of the other computers on it at the left side of the window.

2. Select the server you want, and then click on Connect. A new window will open.

3. Enter your user name and password. This is the name and password that were set up for your

continues



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**TIP**

Whenever a server isn't online, its icon appears as a question mark.

account on the other machine—the one you're connecting to.

4. Click on Options—this is the key move.

5. In the Options box, turn on Add Password To Keychain, and then click on OK. You return to the Connect To Server dialog box, having just told OS X to memorize your password so that you'll never have to type it again.

6. Click on Connect. The icon of the other computer's shared disk or folder—the server—now shows up on your desktop.

7. Drag the server's icon from the desktop to the toolbar. From now on, when you

want to connect to another machine, just click on that icon. One click does the trick—OS X remembers your name and password.

Unused Languages: Free Your Megabytes

Many OS X programs let you work in a number of languages. iPhoto, for example, supports more than ten languages, which contribute to its taking up a whopping 60MB or more of your hard drive.

You can recover some of that real estate by deleting the languages you don't need. You can slim

down iPhoto, for example, to just under 13MB by deleting everything but English. Not bad for two minutes' worth of work.

Note that this operation involves removing files from

inside a software package. If you're worried about damaging the program you're going to alter, create a backup copy of it (option-drag the application to another spot on your hard drive).

1. Control-click on a program's icon. From the contextual menu, choose Show Package Contents. Many OS X program icons are, in fact, thinly disguised folders—and this is how you get into them.

2. Open Contents: Resources. You'll probably see a lot of files inside this folder. You're interested in folders that end in *.lproj*, such as da.lproj and Dutch.lproj. These are the OS X language files.

3. Throw away the files for the languages you don't speak. Close all the open windows. To make sure you've left the application healthy, double-click on it once before emptying the Trash. If for some reason the application won't run (if you dragged out something more than just *.lproj* files, for example), open your Trash and drag all the files you've removed back into Contents: Resources to restore the program (or just reinstate the backup you made).

Changing the Screen behind the Login Window

Behind the initial login screen, the background image is blue with some white arcs running through it in a semicircular pattern. It's very pretty—the first 4,000 times you have to look at it. If you'd like to express your creativity by replacing this background

with something groovier and more personal, you can use this technique:

1. Choose an image you'd like to use. Any JPEG or PDF file is fine.

2. From the root of your hard drive, open Library: Desktop Pictures. A list of the standard Apple desktop images appears. Aqua Blue.jpg is the file you want to replace. Drag it out of the folder to a safe place as a backup (or just rename it).

3. Drag your own graphic into the Desktop Pictures folder. Rename your file Aqua Blue.jpg. This sleight of hand allows the system to find it during the boot process.

4. Restart the machine, and your new image appears behind your login screen.

Storing Apple Software Updates

Software Update is Apple's way of cleaning up after itself. A dialog box appears from time to time, offering to install patches and updates that Apple has just released.

Unfortunately, if you ever reinstall OS X from its original CD or DVD (when you install a new hard drive or move to a new Mac, for example), you'll have to download and install all relevant updates again. You can't skip the reinstallation process, but you can skip the download step.

Preserving these updates on your hard drive is easy enough. Each time Software Update finds updates to install, select the update(s) you wish to install and then choose Update: Download Checked Items To Desktop (see "Software-Update Download").

Later, you can reinstall your downloaded updaters at any time by double-clicking on each installer.

Deleting Orphaned Servers

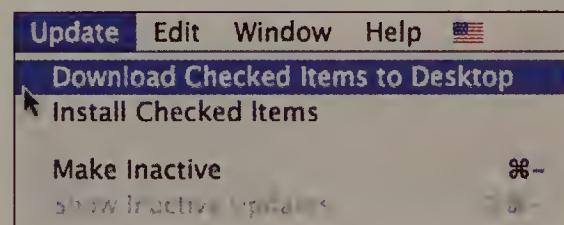
You summon the Connect To Server dialog box in the Finder by choosing Go: Connect To Server (or pressing $\text{⌘}-\text{K}$). Once the box appears, the pop-up menu at the top of the dialog box displays a list of servers you've recently used. The trouble is that when the computers to which you connect move, get renamed, or disappear, the list provides no way to remove the dead items. The solution is to open Home: Library: Recent Servers. Inside, you

will find the icons of the servers listed in the Recent Servers pop-up menu. Just delete the icons for the servers you don't want to see on the list. □



You can also use the Recent Servers folder to create a Dock shortcut. Just drag the folder's icon onto the

Dock, and you've got pop-up access to your recently visited servers.

**Software-Update**

Download When you download software updates from Apple, use this menu command to save a copy of each update on your hard drive. If you've created a folder for downloads, move the downloads there.

inside a software package. If you're worried about damaging the program you're going to alter, create a backup copy of it (option-drag the application to another spot on your hard drive).

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ROB GRIFFITHS is the author of *Mac OS X Hints, Jaguar Edition* (O'Reilly, 2003), from which this excerpt was taken, and he is the founder of macosxhints.com.

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Squeeze Play

After spending several days editing footage for your nonprofit organization's outreach video, you're ready to distribute the finished movie. You'll need to burn a few copies to CDs (for both Macs and PCs) that you can hand out at a meeting, and you want to put the movie on your Web site for a worldwide audience. You could shell out big bucks for the \$449 Sorenson Squeeze 3 Compression Suite (see *Reviews*, page 36) or \$599 Discreet Cleaner 6, but if you're on a budget, Apple's \$30 QuickTime 6 Pro can do the job.

Although iMovie, Final Cut Express, and Final Cut Pro (all based on QuickTime) provide default settings for generating files appropriate for various uses, you'll find that by tweaking QuickTime's Export settings, you can create movies that are more compact

and better looking than the movies your video-editing application automatically outputs.

Movie Magic

To give your movies manageable file sizes, you must compress them. QuickTime includes a variety of compressors/decompressors (or codecs) designed to do just that—we'll focus on two that produce movies of both reasonable size and good quality: the Sorenson 3 and MPEG-4 video codecs.

However, the codec you choose is only one factor in creating superior movies. The size of your movie, the number of frames per second (fps), and the frequency of keyframes also affect the final product.

You can manipulate codecs, filters, and movie settings via the Export command in iMovie, Final Cut Express and Pro, and QuickTime Pro. Doing so in your video application saves the time (and disk space) required if you export the movie in an uncompressed form and then compress it within QuickTime.

To access iMovie's Expert Settings, select File: Export. In the resulting window, choose To QuickTime from the Export pop-up menu and Expert Settings from the Formats pop-up menu. Click on the Export button to reveal the Save Exported File As

window. Select Movie To QuickTime Movie from the Export pop-up menu, and click on the Options button. In the resulting Movie Settings window, click on Settings, Filter, or Size to adjust those settings (see "Under Pressure"). You can change the same settings in Final Cut Pro by choosing File: Export: QuickTime and then clicking on the Options button in the Save window. In QuickTime Player, choose File: Export.

Movies for Modems

Any movie that will be accessed via a dial-up modem connection requires sacrifices in the movie's frame size (number of pixels) and quality.

Begin by reducing the size. Though a modem connection that delivers data at between 48 and 52 Kbps may be able to play movies as large as 256 by 192 pixels, you're safer with 160 by 120. To adjust screen size, click on the Size button in the Movie Settings window and enter the width and height values you desire.

To adjust the frame rate, frequency of keyframes, and maximum data rate, click on the Settings button in the Movie Settings window. In the top pop-up menu, choose the codec you'll use. The Sorenson Video 3 codec is a good choice if people viewing your movie are likely to have Macs or PCs made in the past five years. (Decoding a movie compressed with the Sorenson 3 codec requires a reasonably powerful processor, such as a PowerPC G3 or Pentium II. And Sorenson 3 works only with QuickTime 5 and 6.)

You should set frame rates to a common divisor of the original frame rate—5, 7.5, 10, or 15 fps for a 30-fps movie, for example. For this low-bandwidth movie, set frame rate to 7.5 or 10 fps. (Compress at the higher frame rate first; if the movie you create plays back smoothly over a test connection similar to your intended audience's, use that version.)



ILLUSTRATION BY STUART BRIERS

Keyframe rates for Sorenson-encoded video are typically 10 times the frame rate you've chosen—a keyframe every 10 seconds—so use either 75 or 100, depending on whether you've entered a frame rate of 7.5 or 10 fps.

To determine your data rate, divide the download speed by 10, and then change bits to bytes. So, for example, if you expect download speeds of 48 Kbps over a dial-up connection, aim for a data rate of 4.8 KBps. This results in a conservative value that you can use as a starting point. Once you've entered a data rate in this window, the Quality setting has no effect—leave the slider where it is.

Now compress the audio track. Click on the Settings button under the Audio heading in the Movie Settings window. Select QDesign Music 2 from the Compressor pop-up menu and 22.050kHz from the Rate pop-up menu, select the 16-Bit and Mono options, and click on OK.

Finally, in the Movie Settings window, select the Prepare For Internet Streaming option and choose Fast Start-Compressed Header from the pop-up menu below that. These options allow your movie to begin playing back before it has completely downloaded (this scheme is called *progressive download*).

The Broadband Movie

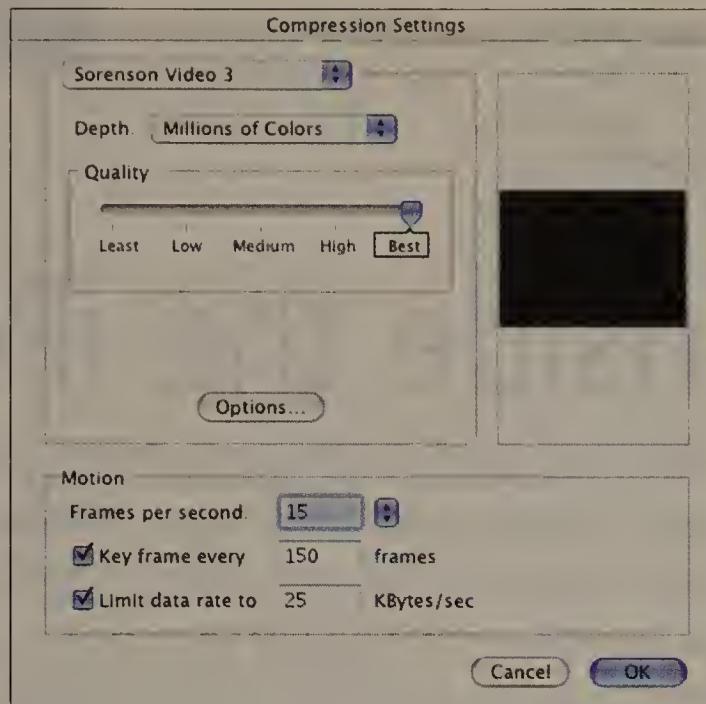
With movies intended for progressive download over a broadband connection, you can safely make the proportions bigger, increase the frame rate, and bump up the data rate.

If you expect your movie to be downloaded over a 256-Kbps DSL connection, make its size 240 by 180 pixels. If it's longer than 5 minutes, choose a frame rate of 10 fps. If it's shorter, or if you suspect that your viewers will have a connection faster than 256 Kbps (or that they'll be patient while your movie downloads), choose 15 fps. When using the Sorenson 3 codec, choose a keyframe rate of 100 or 150, depending on the fps value you've entered. Using the "divide by 10" rule, enter 25 KBps for the data rate.

As you did with the modem movie, use the QDesign Music 2 codec set to 22.050kHz, 16-Bit, Mono. Select the Prepare For Internet Streaming option and choose Fast Start-Compressed Header from the pop-up menu at the bottom of the Movie Settings window.

Alternatively, if you're sure your viewers have QuickTime 6, create an MPEG-4 movie (prior versions of QuickTime don't support MPEG-4). Such movies can be smaller and better-looking than those compressed with the Sorenson 3 codec. Another advantage of MPEG-4 movies is that they compensate for differences in standard brightness, so they look the same played on Macs and Windows PCs.

It's easy to create MPEG-4 movies. Go to File: Export, and select Movie To MPEG-4 from the Export pop-up menu (this option appears only if you have installed QuickTime 6) and DSL/Cable-Medium



from the Use pop-up menu. Click on Save to save your movie as an MPEG-4 file. If you click on the Option button instead, you can edit the movie settings in the MPEG-4 Settings window—increase the data rate, change the fps number, alter the frequency of keyframes, and change the audio resolution. This window offers another benefit: it tells you when you've chosen an invalid selection of settings (and therefore risk producing a movie that will play poorly).

Before significantly altering these values, you should consider using either the DSL/Cable-Low or DSL/Cable-High settings in the Use pop-up menu. As you'd expect, the Low setting creates a smaller, lower-quality movie than the Medium setting. The High setting creates a movie that takes longer to download but looks better than Low or Medium movies.

Movie on Disc

Thanks to the speed of today's media drives, you can open the data floodgates when producing video intended for CD-ROM or DVD-ROM distribution. To begin, create a 320-by-240-pixel movie, and leave the fps field blank—this ensures that the exported movie will use the same frame rate as the original. If you need to fit a lot of video onto your disc, reduce the frame rate to 15 fps.

If you compress your movie with the Sorenson 3 codec and the original movie plays at 30 fps, choose a keyframe frequency of 300 (the frame rate times 10). Because the Sorenson 3 codec can make fine-looking disc-based movies at data rates lower than 100 KBps, test your movie at a data rate of 85 KBps and increase that number if you're unhappy with the results. You have enough available bandwidth for better-sounding audio, too, so choose the IMA 4:1, 44.1kHz, 16-Bit, and Stereo options. Alternatively, select the Movie To MPEG-4 option from File: Export and choose LAN from the Use pop-up menu. This creates a 320-by-240 movie that plays smoothly on media drives made in the past three years. □

Under Pressure The Compression Settings window lets you adjust frame-rate, keyframe, and data-rate settings.

Inside the iPod

When you look at the four buttons, single scroll wheel, and intuitive interface of Apple's iPod, you might believe that there's nothing more to it than plug, play, and rock out. Not so. The iPod has hidden depths. To master all its aspects—from power settings to cross-platform operation—you must know more than how to turn it on and scroll through the calendar. These tips—which cover both previous iPods and the newest models—will help.

Be a Power Miser

Apple claims that the iPod's battery will allow the player to sound off for 10 hours (8 hours on the newest models) between charges. This is true only if you don't do any of the following:

- > Turn on backlighting.
- > Use the next and previous (double-arrow) buttons.
- > Turn on EQ.
- > Play songs larger than 9MB (if necessary, break large files into 9MB or smaller files).
- > Operate the iPod in a cold—or very hot—environment (the battery works best between 50 and 95 degrees Fahrenheit).

Move Your Music

Of course you can move music from your Mac to your iPod, but what if you need to copy music from your iPod to your Mac—for instance, when you've

made room on the Mac's hard drive by deleting your MP3-file collection?

Apple made copying to the Mac harder to do because it didn't want the iPod to become an easy way of transporting music from one computer to another (and thus aid music piracy). The job is possible—it simply requires making the iPod's music folder appear. To reveal this invisible folder and copy its contents to your Mac, you'll need a utility.

Browsing for Hidden Files One option is The Omni Group's OmniWeb 4 Web browser (\$30; 800/315-6664, www.omnigroup.com). It's a tedious way to move files, but it shows how the iPod stores MP3s.

Mount your iPod and drag it into the OmniWeb browser window (see "A Tune with a View"). Double-click on the iPod_Control folder and then the Music folder therein. You'll see a list of folders whose names begin with the letter F. Open one of these, and then double-click on an MP3 file to download it to your Mac's hard drive.

Other utilities—including Flying Mouse Software's \$8 PodMaster 1000, CodeFab's free Podestal 0.1, Beweis's free Open Pod 0.51 (beta), Marco Balestra's free iPod Tracks to Desktop 1.2.1, and BitCom's free Xpod 1.3.6—can download a slew of tunes in one go. Go to VersionTracker.com to find any of these.

Manage Your Music

It's more than a little disconcerting to plug your iPod into the Mac and see the iPod's music library liquified simply because you changed the contents of your iTunes library. To take control of your iPod's library, you must change how iTunes updates it.

Sync Master Settings make the difference. When you choose the Automatically Update All Songs And Playlists option in iTunes' iPod Preferences window, any songs on your iPod that aren't in iTunes' music library will be deleted when you next update your iPod. This option—turned on by default—is handy when you want your iPod to reflect the contents of your iTunes libraries, but it's not so hot when you want your Mac and iPod to hold different songs.

Pick Your Playlists What if you don't want to completely erase your iPod's library? The Automatically Update Selected Playlists Only option updates only the playlists you've selected. Any songs stored on your iPod that don't belong to the selected playlists will be erased. This is a good setting if your family shares an iPod and a Mac. When Dad wants to load his Beatles collection, he selects that playlist in iTunes, and only that portion of the Library is moved over to the iPod (erasing little Addie's jazz standards). When Addie uses the iPod, she



ILLUSTRATION BY STUART BRIERS

can load her playlist—giving the old heave-ho to “Bungalow Bill.”

Manage by Hand When you choose to manage the iPod library manually, iTunes doesn’t automatically delete anything from it. To add songs to your iPod, drag them from the iTunes Library or a playlist.

Pick Tunes On-The-Go

Apple’s latest iPods, which run the iPod 2.0 software, have a new feature called the On-The-Go Playlist. It lets you add tracks to a playlist while you’re out and about with your iPod, just by clicking and holding on a track, album, or artist for two seconds. But items you add to the playlist *after* you start playing it won’t show up until you restart the playlist. So try to enter all your tracks before you start up the On-The-Go Playlist, or remember to restart it after you’ve added tracks.

Wake Yourself Up

The new iPod’s software also features a clever new feature: an alarm clock. If you’ve got your iPod hooked up to speakers, you can use this new feature to wake you with music from any playlist: just choose Extras: Clock: Alarm Clock, and then set an alarm time and choose a playlist from the Sound menu. Don’t have speakers in your hotel room? The iPod can still make a slick travel alarm: just choose Beep from the Sound menu, and the device itself will emit a series of beeps when it’s time to wake up. Be sure to test this feature in advance, though—if you’re a heavy sleeper, the iPod’s quiet beeps may not rouse you.

Craft Creative Contacts

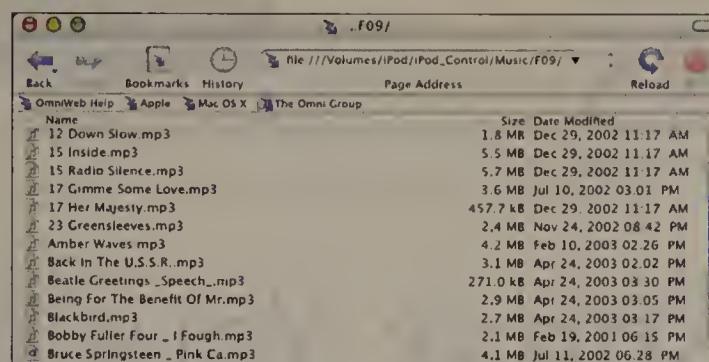
You can place more than just phone numbers and addresses on the iPod. If you’ve got an older model, you can use the iPod’s contact list to store directions, helpful foreign phrases, hotel reservation numbers, or even your favorite recipes.

To do this, you’ll take advantage of vCard—a cross-platform, open standard for storing contact information on computers and other personal computing devices. First open a vCard-compatible contact manager—Apple’s Address Book or Microsoft Entourage, for example. Enter the name of the item (*Bread Recipe*, for example) in the First Name field and the information you want to record in the Title field. Save the contact and move it to your iPod.

To create line breaks, insert `\n` where you’d like the line to break. For example, `2 eggs\n4 cups flour\n1 packet yeast\npinch of salt\n1 cup water` appears on your iPod like this:

2 eggs
4 cups flour
1 packet yeast
pinch of salt
1 cup water

If you’re using a new iPod, adding notes is even easier: just drop text files (they can’t be larger than 4K) in



the Notes folder on your iPod. The iPod will automatically detect line breaks, so you don’t have to add `\n` anywhere. You can even use basic HTML tags to create hyperlinks to other text files (or to parts of your music library). Get more details at <http://developer.apple.com/hardware/ipod/ipodnotereader.pdf>.

Switch Your iPod’s Platform

Unlike the older models, the new iPods are compatible with both Macs and PCs right out of the box—but if you’ve got an older iPod, you can convert it to work with PCs.

Hard-Drive Difference The main difference between the Mac iPod and the Windows version is hard-drive formatting. The Mac iPod’s drive is formatted as a Mac OS Hierarchical File System Extended (HFS+) volume. The Windows iPod bears a hard drive formatted as a FAT32 volume.

To convert an iPod intended for one platform to another platform, download the iPod Software Updater for the intended platform (from www.info.apple.com/support/downloads.html) and restore the iPod with that Updater. This process will erase the iPod’s hard drive (vaporizing all the music and data on it) and format it as either a Mac OS HFS+ or Windows FAT32 volume, depending on which version of the Updater you’ve run. To convert the iPod back to its former self, use the other platform’s Updater.

Windows Aids People converting older iPods to the Windows platform will need a FireWire-equipped PC (and a six-pin-to-four-pin FireWire cable, if the PC has a four-pin FireWire connector) and a Windows-compatible song manager such as Joe Masters’ excellent EphPod (free; www.eppod.com).

Note that unlike six-pin FireWire connectors, four-pin connectors are not powered, so it’s impossible to charge your iPod from such a connector. If your PC has a four-pin connector, you can either install a PCI FireWire card that bears powered six-pin connectors or purchase SiK’s \$21 FireJuice adapter (925/820-1745, www.sik.com). The FireJuice allows you to plug your iPod into either an unpowered FireWire connector or a powered FireWire cable (leading to Apple’s iPod power adapter, for example).

Rock On

Armed with these tips and tricks, you’ll have a smarter, better-sounding, and longer-playing iPod—and isn’t that music to your ears? □

A Tune with a View Use The Omni Group’s OmniWeb browser to view (and copy) the songs inside your iPod.

Contributing Editor CHRISTOPHER BREEN is the author of the soon-to-be-released *Secrets of the iPod*, third edition (Peachpit Press, 2003), and *Mac 911* (Peachpit Press, 2002).

Speak Your Mind

Your Mac may be your central workstation, but that doesn't mean you want to sit at its keyboard *all* the time. With a digital voice recorder and MacSpeech's iListen 1.5.2—the only speech-recognition software that can transcribe audio files onto your Mac—you can dictate your memo, e-mail message, or short story on-the-go, and later download the file, push a button, and watch while iListen types what you said.

iListen (\$99; with headset, \$149; 816/373-4506, www.macspeech.com) isn't perfect (after all, we did give it a **1½** rating, January 2003). But in our tests, the program was about 77 percent accurate when transcribing audio files into Microsoft Word. Three correct words out of four isn't bad, and with a little effort you can raise that average and spend less time cleaning up errors.

Garbage In, Garbage Out

If you want speech-recognition software to understand what you say, you have to give it good material. This means having the right equipment optimized with the best settings.

Choosing a Recorder MacSpeech recommends only two digital voice recorders for use with iListen: Olympus's \$150 DS-330 (**1½**; October 2002)—

which we used for our tests—and \$250 DS-2000 (800/622-6372, www.olympusamerica.com). Others may also work (they must record 16-bit mono files at 16kHz with no compression), but there's no guarantee.

Headsets Help You can talk directly into your recorder, holding it like a microphone. If you choose this option, make sure the recorder's Micsens (microphone sensitivity) switch is set to Dict. This lowers the sensitivity of the internal microphone and prevents it from picking up ambient sounds, such as a coworker's laugh from down the hall. When you talk, hold the recorder 2 to 4 inches from your mouth.

However, speech-recognition software depends on clear, high-quality sound. Pops, feedback, and

noise decrease accuracy. So does uneven volume—for instance, when you hold the recorder against your lips one moment and a foot away the next. By using a headset, you'll get an immediate boost in accuracy, as well as better mobility.

To work with a digital recorder, your headset must have a standard minijack plug, *not* a USB connector. (The VXi Parrot, which is available bundled with iListen, fits the bill.)

Nix the Noise Whether you use a headset or not, you should take advantage of the Olympus recorders' built-in Noise Cancel feature, which reduces background noise. To activate it, select a file you've already recorded and press play. While the file is playing, press and *hold* the play button for a few seconds. The current Noise Cancel level should appear on the recorder's screen. Tap the play button to scroll through the options until you reach the Hi setting, and then push the stop button. This is now your default recording setting.

Create a Profile for Your Recorder

To get the best results, you have to first train iListen to recognize your voice. You do this by creating a profile. Every user must have a unique iListen profile optimized for his or her speech—and each input device also needs its own profile. This is because your voice sounds different when it's played by a recorder. Training iListen to understand the *specific* sound of the recorder is key to improved recognition.

The Hookup The first thing you'll need to do is attach your recorder to your Mac. If your Mac has an audio-in jack, plug one end of the cable (included with the recorders) into that jack, and the other (L-shaped) end into the Ear jack on your recorder.

If your Mac doesn't have an audio-in jack, you'll need an adapter. Griffin Technology offers two options: the \$35 iMic USB Audio Interface and the \$100 PowerWave USB Audio Interface and Desktop Amplifier (615/399-7000, www.griffintechnology.com).



.com). In addition to acting as adapters, both devices boost the quality of your audio. In fact, I recommend using one even if you don't need a USB audio adapter. (You already have the Griffin iMic if you bought the \$149 iListen bundle.)

We were particularly impressed by the PowerWave (3; *Mac Gems*, June 2003). In our tests, it significantly improved sound quality and as a result made training less arduous. Plus, it offers many other useful audio features, such as the ability to connect stereo speakers to your Mac and to record and edit incoming audio.

Turn off your Mac before plugging the PowerWave into your Mac's USB port. Use the cable to connect the adapter's microphone jack and your recorder's Ear jack. Flip the unlabeled black switch on the front of the iMic toward the microphone jack. Set the PowerWave's Thru switch (on the back) to On and its Gain switch to Line. Plug your headset into the recorder's microphone jack, and you're ready to go.

Make a New Profile Before you start a new profile, make sure your System Preferences settings reflect your audio setup. Open System Preferences and choose the Sound pane. Under the Input tab, select the correct setting. For example, if you're routing the recorder's sound through a PowerWave, choose PowerWave USB Audio.

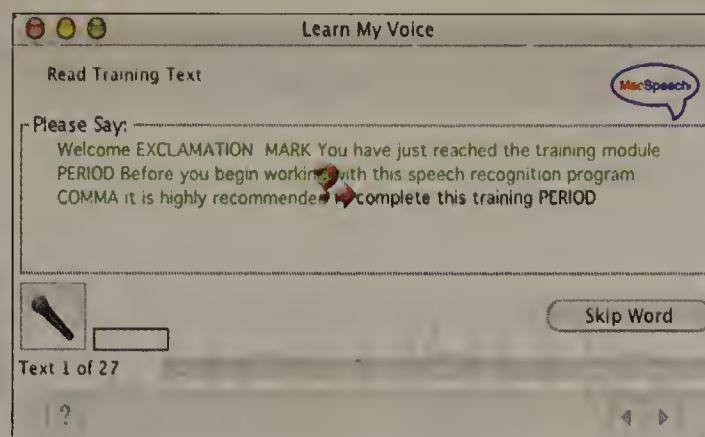
Open iListen and create a new profile (File: Profiles). The New Profile Assistant window leads you through the process of naming your profile and setting up your headset properly.

Trials and Audio Tests Once you've opened a new profile, iListen guides you through a series of sound tests. These help the program adjust basic settings to compensate for the quality of your recording device. Depending on your setup, this process may cause you considerable frustration. Speech-recognition software is picky, and recorders don't exactly boast the best audio quality.

To complete the tests, you need to dictate through your recorder into your Mac. Rather than holding down the recorder's New button throughout all of the tests, use the more thumb-friendly option: simply press the Rec button once. Then delete the resulting file after you're done.

To begin the Recording Volume test, click on the microphone picture and read the short passage on screen. After a few times through the sample text, iListen should indicate whether the sound quality is sufficient. If you find yourself reading the passage again and again with no feedback, it's not sufficient. (We read the text 16 times on our first attempt before giving up.) In this case, adjust the volume on your recorder and repeat the test. Finding the perfect volume setting may take some trial and error. In our experience, volume level 9 was the magic number.

Still having problems? Set your recorder's volume to 9, click on the Show Advanced Settings button,



and tinker with the program's Recording Volume manually. If you still have no luck, then break out the serious equipment: use a headset and consider springing for the Griffin PowerWave.

Once you pass the Recording Volume test, you can proceed with the Recognition And Silence Detection test. If this doesn't go smoothly, open Advanced Settings again and try turning the Silence Detection level down.

Train, Train, Train! You're now ready to begin the Learn My Voice training. This process helps iListen adjust to your voice and manner of speaking. You'll start by reading a long passage of text as the program follows along.

If the program has trouble understanding you, try reading the whole phrase over instead of just the problematic word (see "Training Trial and Error"). To move past a particularly stubborn word, click on the Skip Word button. If you continue having trouble, try turning your recorder's volume down slightly.

Once you've completed the initial reading, you're ready to start transcribing. However, you can further improve iListen's recognition by completing additional training exercises.

Polish Your Transcription Powers

Here are some additional tips that may help you get better results from iListen down the line:

Dictate Shorter Passages Rather than creating one hour-long file for an entire chapter of your novel, consider breaking the chapter into several brief dictation files. It's easier to edit shorter files, since you can quickly fast-forward through the tape to listen to a particular passage.

Train for Special Vocabulary MacSpeech doesn't yet offer special dictionaries for unusual vocabulary—for instance, legal, medical, or technical jargon. You can, however, use the program's Learn My Writing Style feature to help it recognize the strange lingo you use most often. Create a text document that contains a list of specialized terms you commonly use. From iListen's Speech menu, choose Learn My Writing Style, and then select your text document. This will spare you the work of correcting the terms again and again—for example, when iListen substitutes *braid a cardigan* for *bradycardia*. □

Training Trial and Error If you get stuck on a word while training, read the entire phrase over again or click on Skip Word as necessary.

Lamentable Limitations

As the parent of a two-year-old, I've learned that to remain sane, a person has to set limits. Yet as a Mac user, I understand my toddler's tantrums—when my Mac and its applications present seemingly arbitrary limitations, I sometimes react with a grown-up tantrum. If computer restrictions are giving you a case of the terrible twos, join me as we overcome iDVD's 30-second motion-menu limit, short-circuit the Dock's Turn Hiding Off command, capture audio snippets from commercial DVDs, and play Riven and Myst III: Exile without once having to swap discs.

Maximized Motion Menu

iDVD has a 30-second limit for motion menus. I'd like it to be longer. Is there a way to extend the limit to 50 or 60 seconds?

Guy Ivie, Winter Park, Florida

There is—with the help of the Property List Editor application in OS X's Developer Tools.

First you need a copy of Developer Tools, included with the full version of OS X 10.2 and bundled with new Power Macs and PowerBooks. With Developer Tools installed, open an iDVD project, create a motion menu, and save the project. Switch to the Finder, control-click on your project file (called *name*

.dvdproj, where *name* is the project's name), and select Show Package Contents from the contextual menu. Open the Contents folder in the resulting window and then the Resources folder inside Contents. Double-click on the ProjectData file to open it in Property List Editor. In the untitled window that appears, you'll see the word *Root* with a triangle next to it. Follow the path of subentries by clicking on the triangles

next to these items: Root: Menu Folder: Base Info: Children: *number*: Base Info: Inspection Property List: MotionDuration: Value. The *number* entry varies depending on which menu you're editing; 1 is the default motion menu included with many iDVD 3 templates. Additional motion menus bear higher

numbers (2 would be the second motion menu created, and 3 is the next menu created).

To change the length of time the motion menu plays, double-click on the 30 entry next to Value and enter a higher number—60, for example, causes the motion menu to play for 60 seconds before repeating. Save your changes and close the file. To confirm that your motion menu will play for the length of time you chose, open your project, click on iDVD 3's Customize button, click on the Settings button in the resulting drawer, and make sure the Motion Duration slider is now set to the value you entered. Don't touch that slider, or the duration will revert to 30 seconds.

Dicker with the Dock

In OS 9, I was accustomed to pressing $\text{⌘}-\text{option}-\text{D}$ in QuarkXPress to invoke the Step And Repeat command. But even though XPress is running in OS X's Classic mode, the Dock's Turn Hiding Off command overrides that keyboard shortcut. Is there a way to get around this?

Rachel Ortiz, Cicero, Indiana

You can break the Dock's hold on this key combination with the help of the right macro utility. Using either Michael Kamprath's free Keyboard Maestro (www.keyboardmaestro.com) or Script Software's \$20 iKey, formerly known as Youpi Key (www.scriptsoftware.com), you can create application-specific menu shortcuts that allow XPress to Step And Repeat like nobody's business when you press $\text{⌘}-\text{option}-\text{D}$. Once you leave XPress, this command causes the Dock to leap about like a jack-in-the-box, as Apple intended.

Movie Manipulation

Can I capture sound bites from DVDs on my Mac? I'd like to use bits of dialogue as alert sounds.

From the Macworld.com forums



Amble over to www.rogueamoeba.com and download Rogue Amoeba's Audio Hijack. Among other things, this \$16 OS X-only utility allows you to record any audio played on your Mac—a Real Audio stream, for example—and save that audio as an AIFF file. In this specific situation, launch Audio Hijack, click on the Select button in Audio Hijack's window, and choose DVD Player as the target application. Click on the Launch button to launch DVD Player (see "Hello, Jack!"). In DVD Player, navigate to the piece of dialogue you'd like to capture, switch back to Audio Hijack, and click on the Start Recording button. Click on Stop Recording when you've grabbed the goods. Audio Hijack will save the audio it captured as a 16-bit, 44.1kHz AIFF file that you can then play in iTunes.

Trim the sound in an audio editor such as TC Works' free Spark ME (www.tcworks.de) or Felt Tip Software's \$50 (\$60 on CD) Sound Studio 2.1 (610/293-0512, www.feltpip.com). Then save the file with an .aiff extension (.aif won't do) and drop it into the Users: *your user folder*: Library: Sounds folder. You can now select the file within the Sound system preference.

Audio Hijack Pro (\$30) lets you save files as MP3s and supports VST and AudioUnits plug-ins—handy when you want to process an application's sound with effects and equalization.

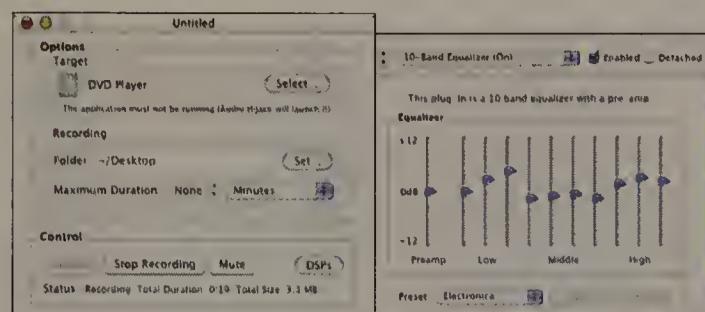
Myst-ery Discs

I'd like to play Ubi Soft's *Myst III: Exile* on my Power Mac G4, but it's on five CD-ROM discs, and having to repeatedly swap discs interferes with game play. Is there a way I can load the info onto my hard drive and make the game believe all five discs are mounted?

Jeff Fish, Halifax, Nova Scotia, Canada

It's usually a cinch to place multi-disc games on your Mac's hard drive by mounting virtual discs in the form of disk images. Just launch Disk Copy (Applications: Utilities), insert the first disc into your Mac's media drive, and drag it into the Disk Copy window.

In the OS 9 version of Disk Copy, a Save Disk Image As window will appear. Select Read Only from the Format pop-up menu, leave the Size pop-up menu alone (by default it creates an image the same size as the disc you've inserted), and click on Save to create the image. For those of you following along with OS X's Disk Copy, an Image Volume window appears when you drag a disc into the



Disk Copy window. In this window, select DVD/CD Master from the Image Format pop-up menu, leave the Encryption pop-up menu alone, and click on Save to create your image. Repeat for each disc in the set.

Once you've created images of all your discs, double-click on the images to mount them. Now launch your game and shimmy with delight when it treats those mounted images as the real deal and ticks along without begging for additional discs. To slicken this trick (and save some hard-drive space), burn the images to a DVD-R disc. When you're ready to play your game, insert the DVD-R, select all the disc images on it, double-click on them to mount the images—and play on, brothers and sisters, play on.

And now for the fine print. Although this trick works a treat for most games—*Myst III: Exile* included—it falls flat with *Myst's* sequel, *Riven*. To keep *Riven* from demanding platter after platter, you must install *Riven* (creating a *Riven* folder on your hard drive), open the Data folder on each disc, and copy any files with the .MHK extension (p_Data.MHK, for instance) into the Data folder within the *Riven* folder on your hard drive.

Pasty Faced

Whenever I paste text from my e-mail program into Microsoft Word, it appears in the wrong font with odd paragraph breaks. How can I make it paste in correctly so that I don't have to reformat it?

E. R. Loomis, Bellevue, Washington

Word's Paste Special command offers the assistance you desire. The somewhat tedious way to invoke the command is to choose it from the Edit menu, select Unformatted Text in the resulting Paste Special window, and click on OK. Text will appear at the insertion point, with the current formatting for that paragraph.

I term this *tedious* because it requires taking a trip to the Edit menu. To save yourself the journey, do as I did and create a macro. Select Tools: Macro: Record New Macro. Assign a name to the macro and click on the Keyboard button in the Record Macro window. In the

Hello, Jack! Audio Hijack lets you capture audio from any OS X-native application, including DVD Player and Real's RealPlayer.



TIP OF THE MONTH

ing, I found that the problem was with the way I'd originally recorded the sound with my DV camera. Like many DV camcorders, mine records sound as 12-bit audio by default. Regrettably, recording at this bit rate can lead to audio-sync problems in iDVD 3.

To prevent the problem, record audio at 16 bits. If you've already recorded at 12 bits, configure your camera to record at 16 bits, export your 12-bit video clips from iMovie back to your camcorder, and recapture them in iMovie.

David Sawyer McFarland, Portland, Oregon

continues

UNSOLICITED ADVICE

I'm routinely awed by the usefulness of FireWire Target Disk Mode—the function built into FireWire Macs that allows you to easily access the hard drive on a Mac connected by FireWire. My most recent moment of awe came when I wanted to back up the Users folder on my PowerBook. Said PowerBook lacks a drive capable of burning CDs or DVDs, and I wasn't looking forward to copying 4GB of data to my SuperDrive-bearing Power Mac over a fairly poky AirPort connection.

Suddenly, it dawned on me. Wait a minute—why not string a FireWire cable between the PowerBook and the Power Mac, restart the PowerBook with the T key held down to boot into FireWire Target Disk Mode, boot the Power Mac (where the PowerBook's hard drive will appear as a local FireWire drive), insert a blank DVD-R into the Power Mac's SuperDrive, and burn the Users folder to the DVD?

Why not, indeed? I did. It worked. You, too, might want to try it.

Customize Keyboard window, press a keyboard combination (I chose control-option-V) and click on the Assign button. Click on OK to dismiss the window and produce the Macro Recording palette.

Now run through the procedure I outlined in the first part of this response. Click on the Stop Recording button when you're done. When you next need to paste unformatted text into a Word document, press your macro key combination to tidy up your text.

Security Blanket

I miss OS 9's Password Security control panel. Is there a way I can protect my PowerBook in OS X?

Arthur Melehan, Detroit, Michigan

Recent Macs (all iBooks, slot-loading iMacs, FireWire PowerBooks, AGP and later Power Macs, and the Power Mac Cube) let you create an Open Firmware password if your Mac's firmware version is 4.1.7 or higher (you can find the version number in the System Overview section of Apple System Profiler). Open Firmware is a cross-platform standard for controlling hardware on PCI-compatible Macs. Although there's very little mere mortals can do in Open Firmware, even the merest among us can enable a kind of password protection that prevents others from creatively booting a Mac running OS X. Such creative booting includes starting up from any volume other than the one designated in the Startup Disk system preference—for instance, booting from a CD or FireWire drive—or booting into Single User or Verbose mode.

Should a passing rapscallion try to skirt this protection by holding down the C key at startup with a bootable CD in the media drive or by mashing the option key at startup in an attempt to choose a different volume, he or she will encounter a screen that features a large lock icon and a field for entering

the Open Firmware password. Anyone who doesn't know it is out of luck—the Mac won't boot.

There are two ways to enable the password. The easy way is to travel to <http://docs.info.apple.com/article.html?artnum=120095> and download Apple's Open Firmware Password 1.0.2 utility. Run the utility, select Require Password To Change Open Firmware Settings, create and verify a new password, and click on the Change button.

If for some reason you don't have online access, there is another (though harder) way. Hold down ⌘-option-O-F at startup to boot into Open Firmware. When you see the Open Firmware prompt, type **password**. Enter the password you want to use for Open Firmware and verify it when prompted. Now type **setenv security-mode full**. This enables the same level of protection as the Apple utility. Finally, type **reset-all** to restart your Mac.

To get rid of this protection, either run Open Firmware Password and deselect Require Password To Change Open Firmware Settings, or boot into Open Firmware, type **setenv security-mode none**, enter your password when prompted, and type **reset-all**.

Speak the Speech

I'm looking for an inexpensive way to make and edit a voice-over for a QuickTime movie.

Joe Dulak, Winona, Minnesota

I perform the very same job each month when I produce Breen's Bungalow, the QuickTime tutorial found on the disc bundled with newsstand copies of *Macworld*. The tool I use is iMovie.

Drag your QuickTime clip into iMovie. (If you're using a version of iMovie prior to 3.X, you must convert the movie into a DV stream with a utility such as QuickTime Player Pro. iMovie 3 converts QuickTime movies to DV streams during import.) Now click on the Audio button.

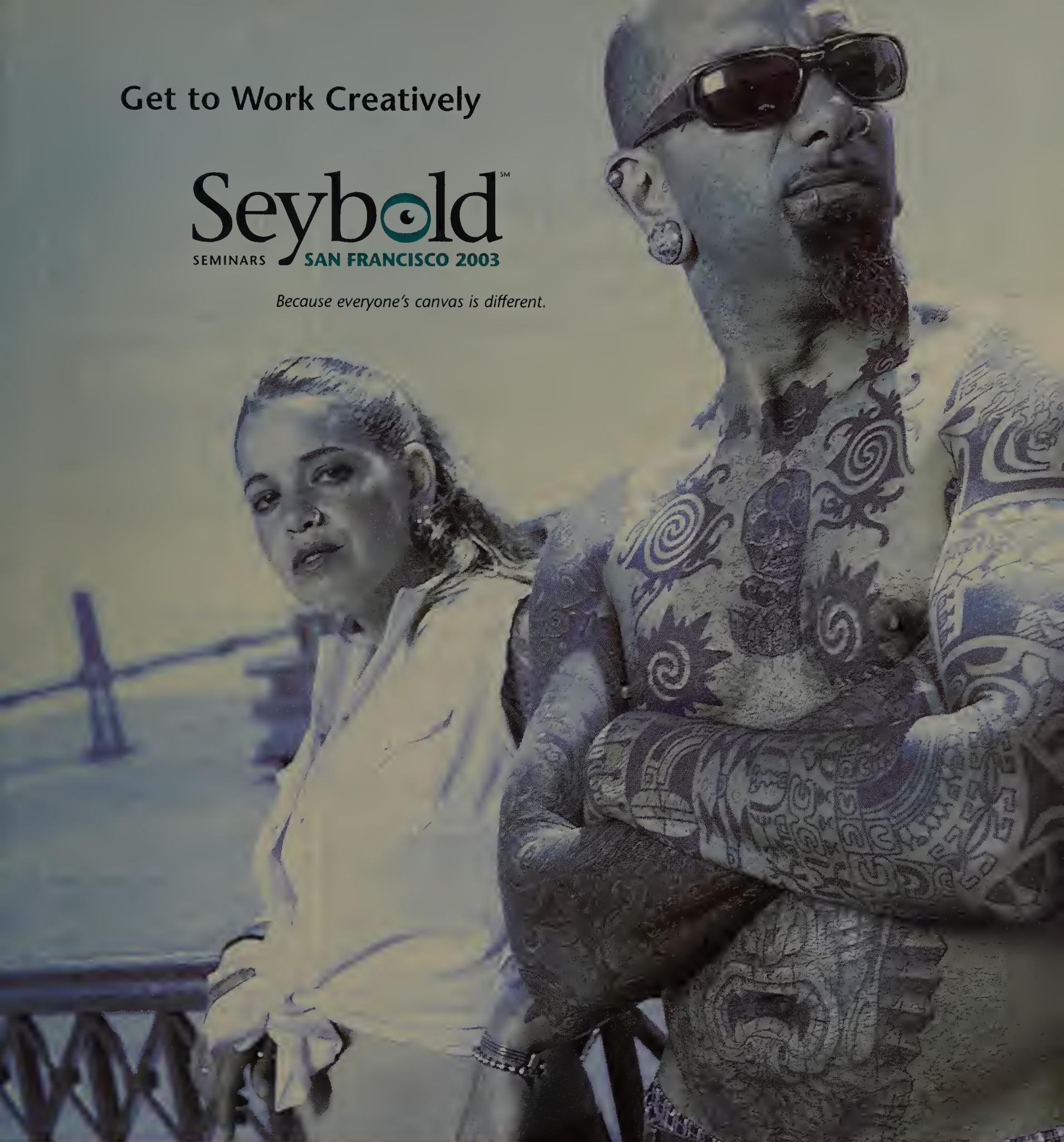
Here you'll find controls for recording audio from the input device selected in the Sound system preference. Click on the red Record button and begin your voice-over. If you make a mistake, click on the Stop button, delete the audio file that now appears in iMovie's timeline, and record a new take.

To edit a voice-over, open the movie's project folder and then the Media folder, where you'll find files with the same name as your voice-over tidbits—Voice 01, Voice 02, and Voice 03, for instance. Edit the appropriate file in an audio editor (such as Spark ME or Sound Studio, mentioned earlier), save it, drag it into iMovie, and position it wherever you like. □

Contributing Editor CHRISTOPHER BREEN is the author of the soon-to-be-released *Secrets of the iPod*, third edition (Peachpit Press, 2003).



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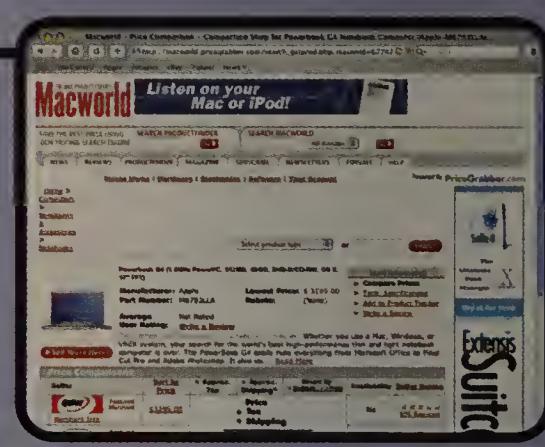


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When It Comes to Macs, Power Is More Important Than Speed

Speed Kills

THIS NEW POWERBOOK OF MINE IS NO DAMN GOOD. I'VE got several laptops here in the office, fulfilling several different functions—by no means the least of which is to impress waitresses at my neighborhood coffee shop, specifically the one with the pink streak in her hair who works on Monday, Wednesday, and Thursday afternoons.

"Wow!" she coos when she reaches my table and finds me sitting behind something improbably fast and slick and (lately) very shiny. I tell her it's nothing much, and then I casually rattle off a well-rehearsed battalion of technical details before changing the subject. "Hey, is that a fresh tattoo?" I ask. "Who did the work?"

She shows me her new body art, I show her my new PowerBook . . . oh, how we *do* enjoy the dance.

But today the 12-inch PowerBook left her cold. Maybe it was my fault for bringing just the one. Usually I have two or three screens of different sizes and shapes surrounding me like a tanning bed. All I know is, before I could determine whether the new image on her right calf was a Frazetta-inspired image of Betty Boop riding a hummingbird, or an FBI photo of fugitive crime lord Whitey Bulger, she'd deposited a pot of green tea and some almond biscotti and hustled off without making any comment at all.

Well, it shook my confidence, dear readers. This new 12-inch PowerBook is one cool dish of ice cream. I was certainly taken with it. It's small, but it has *power*, and I was more than prepared to obsessively bore this lucky woman about each of its advanced features until she was well past the point where she'd have no alternative but to take me back to her place. Have I been wrong all this time? Is power really all it's cracked up to be?

It just made me wonder. For years, I've been whining (privately and publicly) about the need for a nice compact PowerBook. But you know what? Apple came out with a great tiny PowerBook a whole year ago . . . except the company sneakily called it the iBook.

I arranged to swap my PowerBook for a pal's iBook for a couple of weeks. I left ten perfectly good G4 processors sulking in my office and relied exclusively on the Little Velocity Engine That Wasn't for all my computing needs. And, well, gorblimey, I could barely tell the difference.

Mind you, I'm not suggesting that a \$999 iBook was the equal of a PowerBook that costs nearly twice as much money and has at least half again as much processing power. But the CDs got ripped, the files got found, the words got written, and the moneys I skimmed from the company pension fund got chan-

neled to the Bank of Cameroon just as securely. The Holy Trinity of Mac productivity—for me, and for most users, it's a Web browser, an e-mail program, and Microsoft Office—was content and at peace.

It's easy to be seduced by speed. I'm a big, dumb male: when I see a spec sheet, my eyes reflexively flick to the rightmost column, where the fastest processors are stabled, even though I know intellectually that the speed advantage of Apple's fastest Mac, compared with its slowest, is obliterated during that fraction of a second when I think I hear the FedEx truck coming and glance out the window.

I shouldn't think in terms of speed; I should think in terms of *power*. An iBook can be more powerful than a single G4 tower that isn't free to roam. An inexpensive G4 tower can be more powerful than the top-of-the-line model, if you use the extra money to buy AirPort cards and a Base Station for the whole office. Speed is a number. *Power* is the ability to get things done.

Which brings up another point: there's plenty of speculation that Apple will switch to Intel processors. The subject comes up during the Q&A after nearly every user-group talk I give. And it's silly.

Such a move would be woefully counterproductive. Now I know, better than ever before, that the Megahertz Myth isn't about the inappropriate use of one user-friendly number to compare the speeds of two different processor families. The myth is the idea that such numbers are all that important in the first place.

We're Mac people, for God's sake! We're supposed to be more sophisticated than that. And while we may not be smart enough to know that the way to convert an Intel user is to put a Mac mouse, not a spec sheet, in his or her hand . . . well, we *ought* to be. We certainly act like we are.

Frankly, if I ever wind up in a business where my boss expects me to work so hard that a dual-processor 1GHz desktop can barely keep up with me, I'm more than willing to quit and work in a place where I spend most of my time waiting for the light on a french-fry machine to come back on. □



Have I been wrong all this time? Is power really all it's cracked up to be?

Contributing Editor ANDY IHNATKO (www.andyi.com) believes in the simple things in life—text editors, iBooks, and local coffee shops among them.



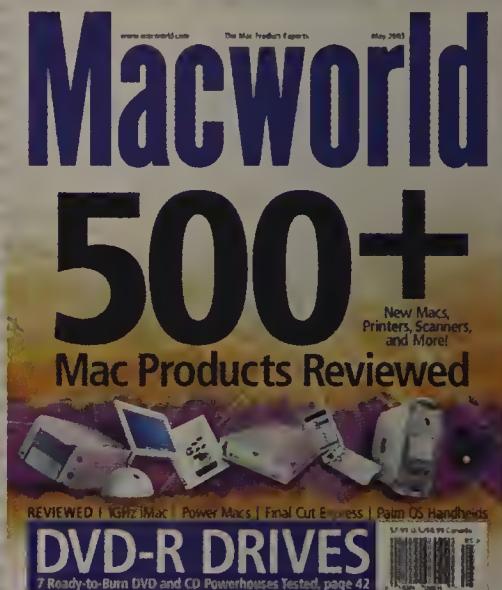
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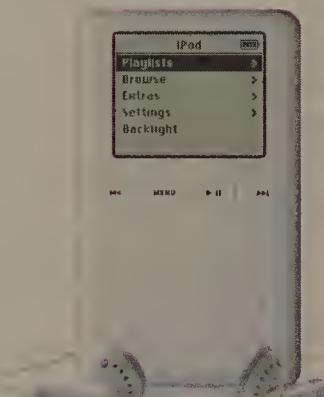
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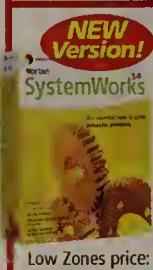
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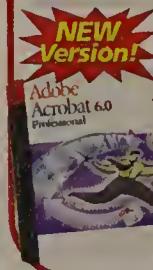
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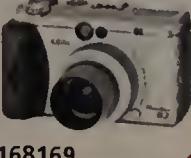
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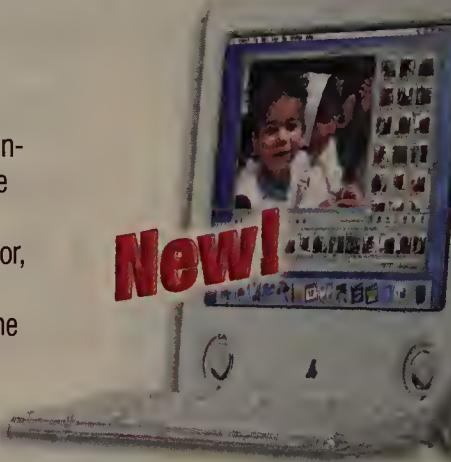
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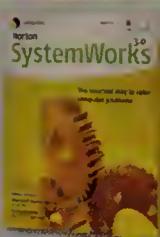
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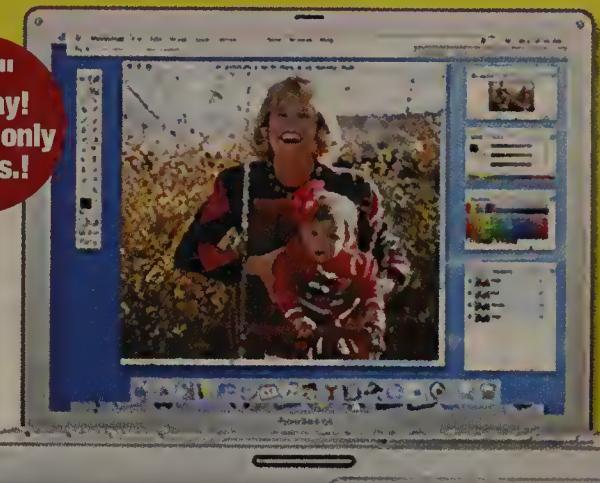
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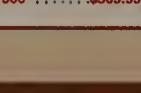
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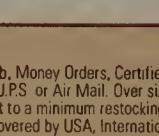


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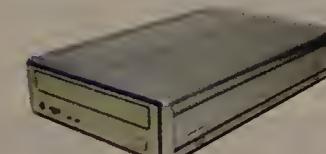
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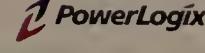
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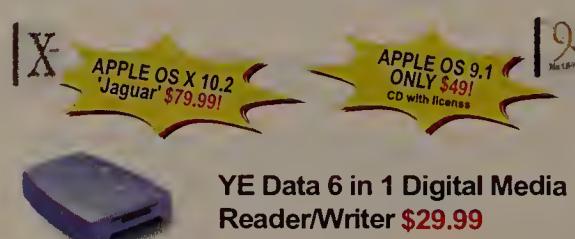
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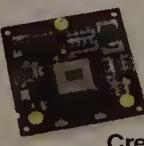
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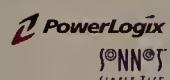
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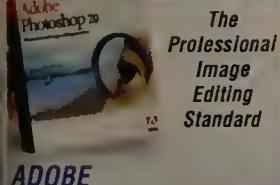
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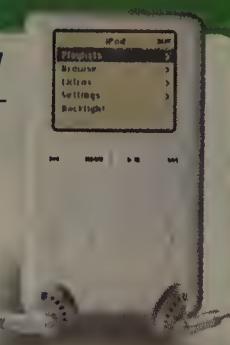
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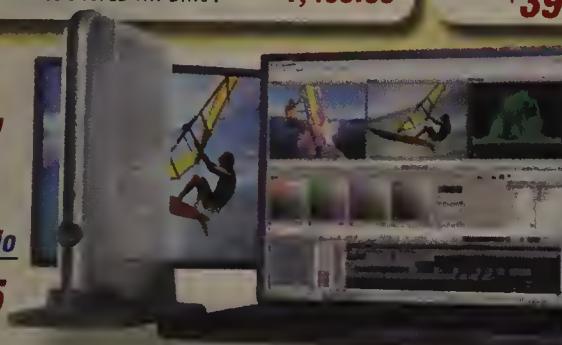
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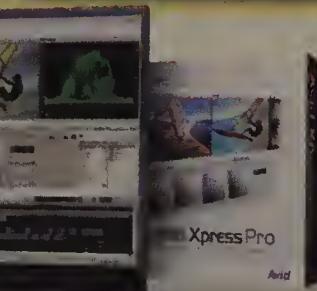
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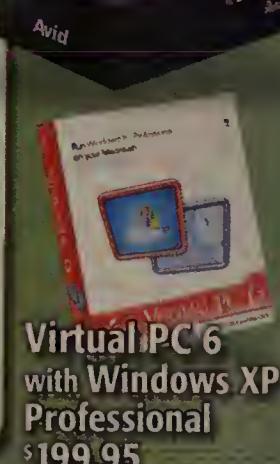
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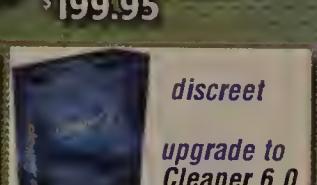
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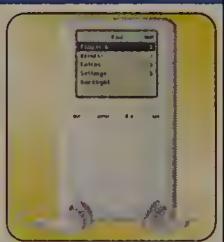


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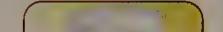
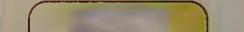
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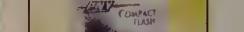
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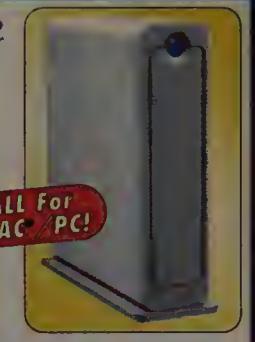
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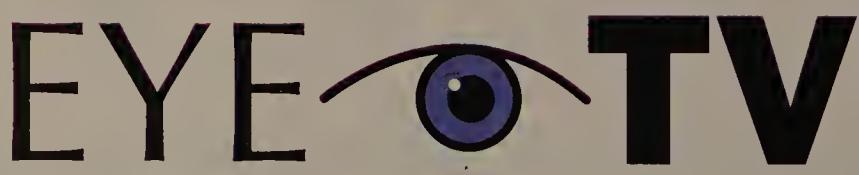
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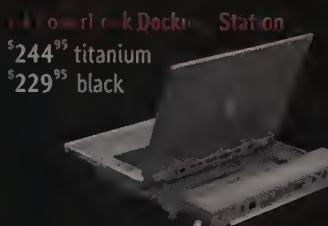
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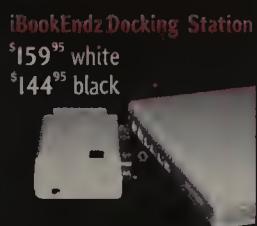
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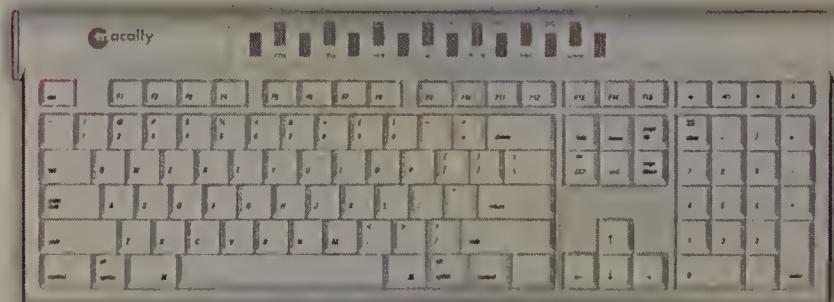
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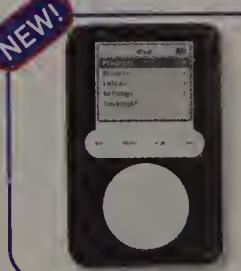
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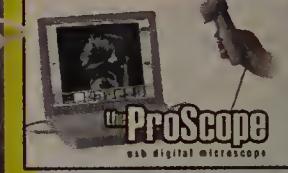
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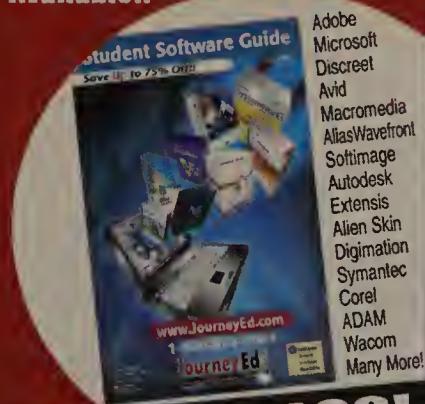
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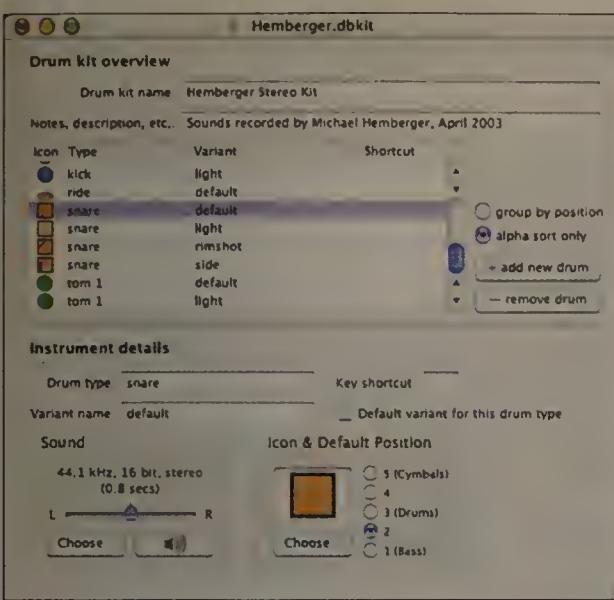
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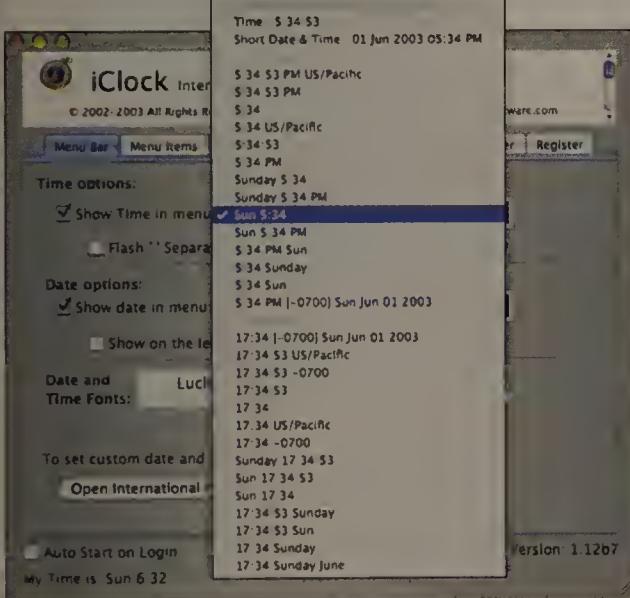
software such as Emagic's Logic Platinum or Steinberg's Cubase. It is, however, a really cool tool for performance, recording, or just playing around. Check out the two audio samples Zygoat has posted on the Doggiebox site, or download the demo version and make your own racket.

One Step at a Time

If you burn a lot of CDs (beyond iTunes music CDs), Roxio's Toast 5 Titanium is the best game in town. It's faster and more flexible than Apple's Disc Burner, and it supports more formats, including VideoCDs, Enhanced Music CDs, PC-only discs, and DVDs. But it also costs \$100 (download, \$90), and you can buy a gazillion blank CD-Rs for that amount—so it's understandable that many people who burn only a few discs here and there want to use the free stuff Apple bundles with every Mac.

If you want to maximize your CD space when making backups of folders and files (and as I noted earlier,

you should be backing stuff up regularly), you generally have one option: select about 650MB of data and burn a full disc. Generally, though, you'll find that you've got lots of burned CDs with 100MB or less on them. Partially full CDs may not pose a financial burden



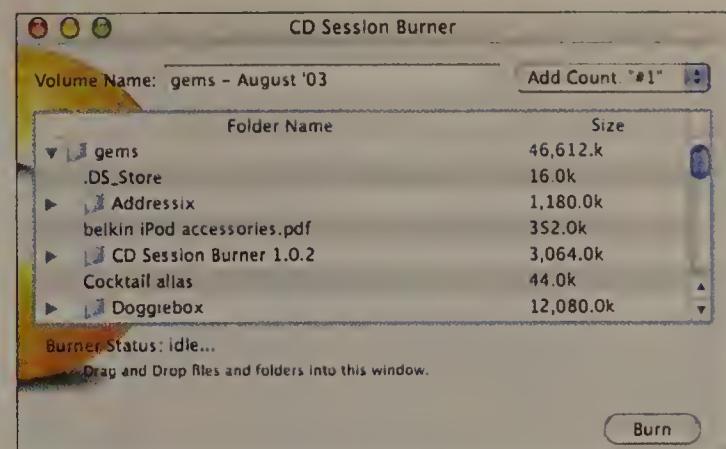
On the Clock

With iClock, you're no longer limited to OS X's plain menu-bar time.

continued from page 132

Once you've created your drum tracks, you can play and modify them inside Doggiebox, or you can export them as a sound file in any of nine professional and consumer audio formats, including AIFF, Wave, Wave64, and Paris.

Doggiebox is not a MIDI program; it won't drive a drum machine or plug into



Burning Desire CD Session Burner allows you to incrementally record data to CDs, thereby maximizing your storage.

given the inexpensiveness of blank media, but they can be uneconomical in the long run—and they result in lots more CDs to store (and to search through when you're having trouble finding a file).

If you'd like to be more efficient about backups, take a look at James Sentman's \$17 **CD Session Burner** (****). This application takes advantage of a little-known feature embedded in every CD burner and in Mac OS—the capability to read and write multisession discs.

Simply put, a multisession CD lets you write individual volumes until the disc is full. After each burning session, the program creates a new volume on the CD; when you mount the disc on your Mac's desktop, each volume (or session) shows up as a separate CD icon. Apple's built-in disc-burning feature can't create multisession discs (although it can be done with Disk Copy), but adding CD Session Burner to your Mac makes doing so a piece of cake. CD Session Burner has an uncluttered interface with few buttons, and it does all of its magic in the background.

Finding the Time

CD Session Burner is a gem that adds functionality to an existing Mac OS feature. Script Software took a different approach with its \$20 **iClock** (****), choosing instead to build an enormously enhanced replacement for OS X's menu-bar clock.

Apple's menu-bar clock is fairly simple; you get limited display options, listed along with the date in a drop-down menu. iClock lets you add the date to the clock and change its color and font (for some reason, you can't make the clock an icon), but the program has much more depth than that. It includes features such as a timer, a stopwatch, floating calendars and clocks, times for cities around the world, and an OS 9-style Application menu. The timer is especially useful—you can set it to play a system sound, display an alert, launch apps or documents, and even run scripts.

For many people, iClock will be overkill—it's more than I need, although its application-switching menu does tilt the balance in iClock's favor—but if you want your menu bar to give you more than just the time, iClock is a good place to start. □

RICK LEPAGE is *Macworld*'s editorial director. Is there a utility or gadget you couldn't get along without? Send your thoughts on this column, or on things you'd like to see in future columns, to macgems@macworld.com.

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Care for Your Mac

THERE ARE LOADS OF VERY COOL FREE OR LOW-COST system-enhancement utilities out there, and every month brings a few more tools that perform a variety of functions, such as adjusting the Dock, fixing

and assigning permissions, and running maintenance tasks. A lot of us at *Macworld* couldn't live without programs such as BatChmod (4 1/2) and Tinker Tool (4 1/2)—see “Mac Software Bargains,” July 2002—and, from this year's bargain roundup (May 2003), Carbon Copy Cloner (4 1/2), MacJanitor (4 1/2), and Alfred (4 1/2). To that list you can now add **Cocktail** (4 1/2), a free utility from the folks at Dicom Datautveckling in Sweden.

Cocktail performs 20 system tasks and interface adjustments, arranged in five basic categories: Disks, System, Files, Network, and Interface. Similar to MacJanitor and Tinker Tool, it can run maintenance tasks such as repairing your system's permissions, running the scripts that your Mac would run if it were on in the middle of the night, deleting unnecessary cache files, and putting double scroll arrows at the top and bottom of windows (instead of just at the bottom—the only option available via Apple's General preference pane).

Some of **Cocktail**'s other features include arcane but often useful tasks such as renewing DHCP leases on a network (I've found this feature handy), building symbolic links (the Unix equivalent of Apple's file aliases), deleting archived system logs and DS_Store files, and letting you view invisible files in the Finder.

Many of these operations, such as permissions repair, can be done with Apple utilities, from within Terminal, or even with one of the aforementioned utilities, but it's nice to have them all in one place, and **Cocktail**'s dashboard-style interface is smart and well designed.

As with any utility that alters OS X's Unix code, you can cause some damage with **Cocktail** if you don't know what you're doing—so be careful. Journaling in particular is something we recommend that casual users leave alone; it's primarily intended for Mac OS X Server installations, and Apple left it out of the standard OS X installation for good reason.

Strong Safety

In *Macworld*'s May 2003 “More Mac Software Bargains” blowout, we covered quite a few options for backing up your system, including SilverKeeper (4 1/2), Déjà Vu (4 1/2), ChronoSync (4 1/2), and ExecutiveSync (4 1/2). Another choice is SweetCocoa's **iMsafe** (4 1/2), which I think is as good as any of those utilities.

The \$15 **iMsafe** can back up folders and files to disk (or an online backup location), and it can synchronize two sets of folders or disks—so you can always have an exact copy of your home MP3 library at work, for example. You can easily create multiple backup and synchronization sets, and you can run each set manually or schedule daily or weekly run times. There's not a lot to say about **iMsafe** beyond the fact that it works; of all the inexpensive OS X backup utilities I've tried, **iMsafe** is the most flexible and the easiest to use.

With so many free or inexpensive options for backing up your Mac, you have no excuse for lost data. If you own a portable hard drive (or an iPod) and shuttle stuff between work and home, a backup and synchronization utility is one of the best investments you can make.

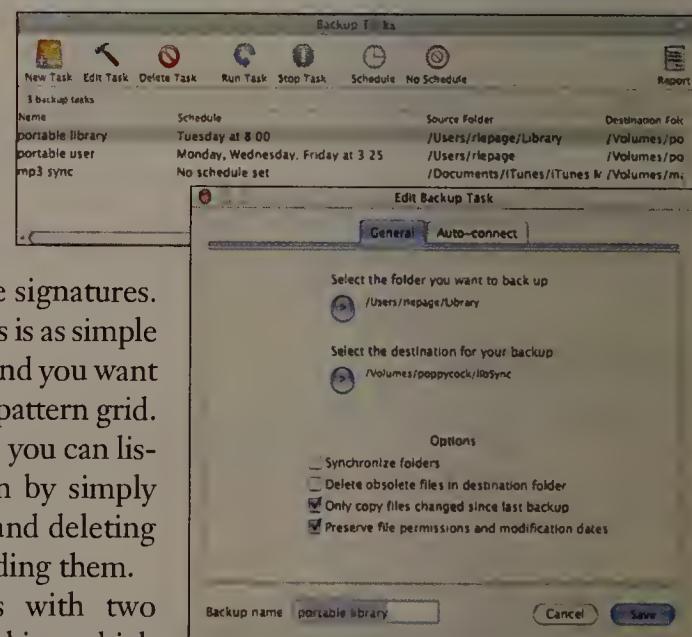
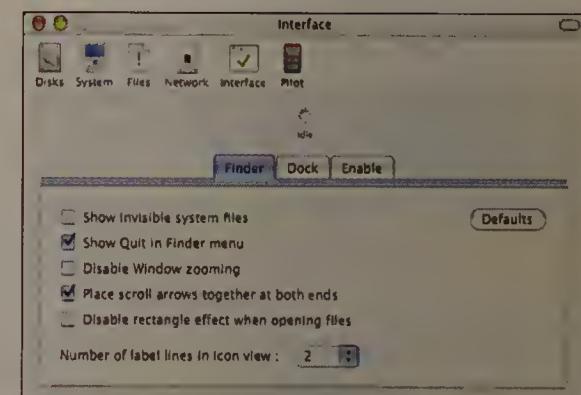
Shake, Rattle, and Roll

Sometimes you just need to make noise, and if a set of drums isn't nearby, turn to Zygoat's **Doggiebox** (4 1/2), a \$29 program that turns your Mac into an electronic beat box.

Doggiebox is an easy-to-use drum sequencer that lets you use a virtual drum kit to create drum tracks of unlimited length and varying tempos and time signatures. Creating rhythm patterns is as simple as selecting the drum sound you want and then clicking on the pattern grid. Throughout the process, you can listen to your composition by simply pressing the spacebar—and deleting notes is just as easy as adding them.

The program comes with two complete sample drum kits, which include multiple sounds for high hats and other cymbals, snares, tom-toms, and kick drums. You can also easily create kits by importing audio samples.

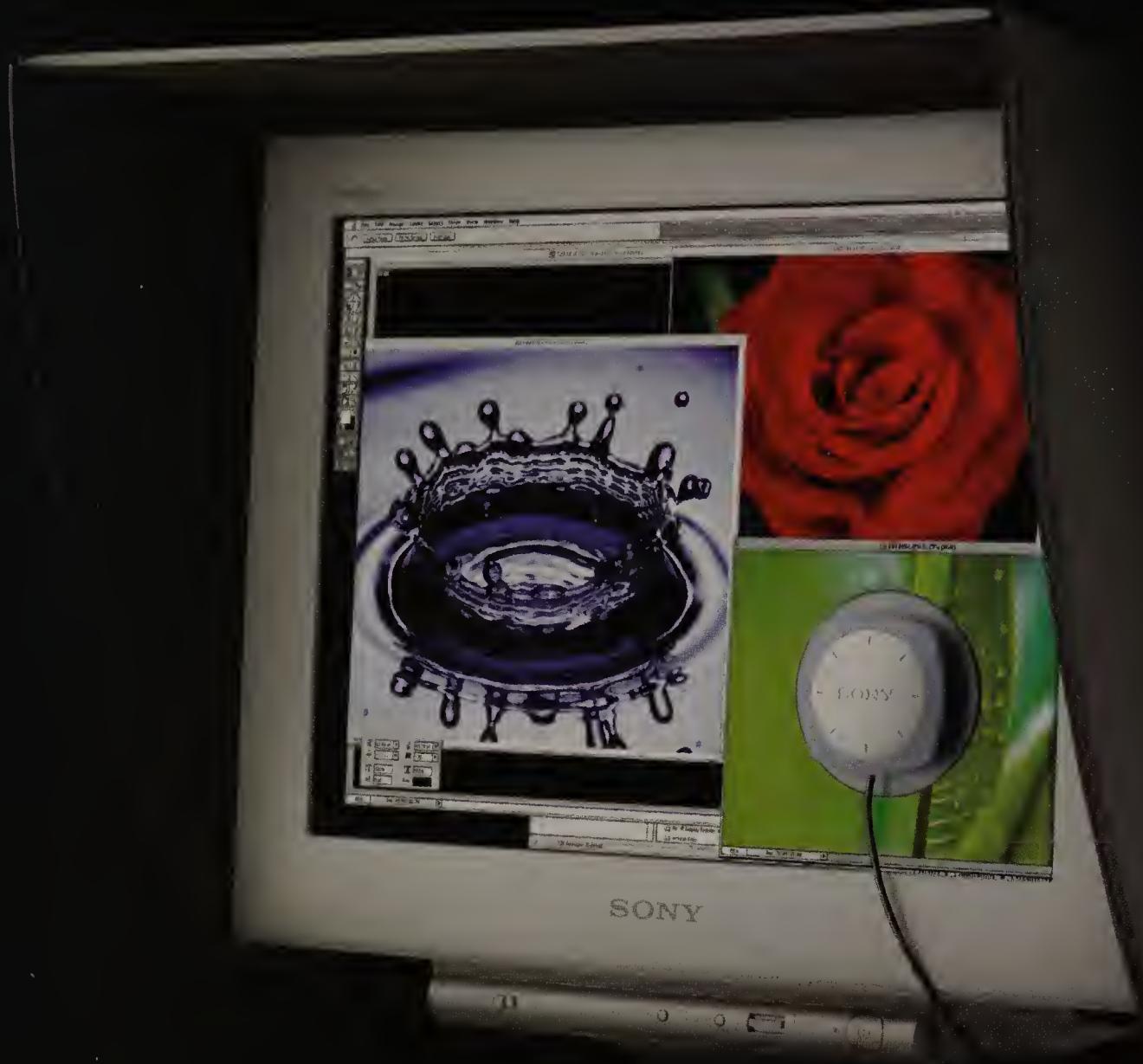
Shake It Up **Cocktail** makes it easy to perform system tweaks and interface adjustments.



Safety First Backing up your data is always a good idea—**iMsafe** makes doing so a snap.

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